# The Veterinary Record.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 36. SEPTEMBER 6, 1930. VOL. 10.

## Research in Animal Genetics.*

By Sir Edward Sharpey-Schafer, F.R.S., F.R.S.E.

This Department was established some ten years back to investigate the principles which should govern the breeding of animals employed in agriculture—sheep, pigs, cows, horses. It was placed under the direction of a joint committee of the University of Edinburgh and the East of Scotland College of Agriculture, with myself as Convener. The first step to be taken was the all-important one of selecting someone to carry out and direct research on the subject—no easy task. After some delay, caused by negotiations with one or two individuals who might, we thought, receive the appointment, but who were eventually deterred by the difficulties which seemed to beset the work, our choice was fortunately fixed on the present Director, Professor F. A. E. Crew, who had already made a name for himself as an authority on genetics—the science which deals with heredity and therefore with breeding—with the result that the Department has already become the unqualified success we see—a success not only in the objective sense, as manifested by the buildings we are assembled to inaugurate, but much more in the personnel which the Director has been able to gather round him and in the work which they have already effected.

It might be thought that as the Department was established for the encouragement of agriculture and under the auspices of the Board of Agriculture, and that the avowed object was to improve the breeds of animals used for agricultural purposes, the choice of a Director would have fallen upon an agriculturist accustomed to the breeding of stock, who would surely have been best able to judge what results were required to be attained and how these results could be arrived at. This would no doubt be the view held by the individual commonly known as "the man in the street," or in this case, "the man in the fields"; and those who hold this opinion would naturally consider that in appointing a purely scientific man, with little or no experience in the breeding of farm animals, the Joint Committee made an initial mistake. The breeding of animals is an applied science and, as with all applied sciences, it must be founded upon a sound basis of pure science. Moreover, it is essential that it should, like every other branch of science, be based upon experiment. Now it would be possible for experiments in breeding to be carried out on ordinary farm animals—as indeed they have been and still are with a certain amount of success. But the length of time one has to wait to ascertain the result of experiment in animals which have a gestation period of many months greatly limits the number of experiments which can be made, and renders the progress of research very slow; besides which, from the interbreeding which has been going on for long periods in most domestic animals, the results may be uncertain. To take a concrete example as illustration of the slowness of such experiments on large animals, we may cite the Penycuik Experiments on Telegony by Professor Cossar Ewart. By telegony is meant the influence exercised upon the mother by the fœtus *in utero*. It is not so long ago that every breeder in the country believed that if a female of a pure breed were crossed by a male of the same species but of another breed or of no breed at all, the resulting progeny would so influence the maternal organism that this particular female would never again—even if crossed by a male of exactly the same breed—produce pure progeny; that, for example, a mare of the purest blood would be permanently ruined for stud purposes if she were in foal to a stallion which had no pedigree behind him. The circumstance was thought to be proved by the observation of Lord Morton, communicated to the Royal Society in 1820, that a mare which had produced a hybrid foal to a quagga—a species of zebra—and was afterwards crossed by an Arabian horse, happened to produce a foal which exhibited distinct stripes; these stripes were supposed to have been caused by an influence exercised upon the mother by the hybrid foal *in utero*. The question of telegony was, however, definitely settled in the negative, so far as the Equidæ are concerned, by Professor Ewart, who crossed mares first with zebra stallions, producing hybrids which showed distinct stripes, and subsequently with ordinary horse stallions. The progeny of the second crossing never showed signs of the zebra influence, although faint stripings were sometimes visible in the foals, but not more so than in ordinary foals, in which stripings are sometimes noticeable, this being an indication that the horse in the course of evolution had at one time a striped ancestor.

These experiments took years to bring to a conclusion, and cost hundreds of pounds. But similar experimental results can be obtained in a comparatively short time by the selecting of small animals with short periods of gestation. Nor is it necessary or always expedient to employ mammals alone for such experiments. For many purposes birds are even better adapted. And as the experiments of T. H. Morgan and others have shown, the laws which govern heredity and the morphological conditions which accompany and determine the transmission of bodily characters may be even more advantageously studied in certaim invertebrate types, such as Drosophila. Nor are these laws essentially different in the animal and vegetable kingdoms. The law of heredity discovered by Mendel was the result of experiments upon crossing varieties of sweet peas. And of late years a vast amount of work of the same kind has been carried out on different kinds of plants, which in some particulars lend themselves even better than

* Address delivered on the occasion of the opening of the Department of Research in Animal Genetics, University of Edinburgh, on Monday, June 30th, 1930.

DEPT. OF VET. MEDICINE

animals to the elucidation of the principles governing heredity. It would be too technical and would occupy too much time to refer even briefly to the remarkable results which have been attained in such experiments; suffice it to say that they illustrate the fallacy of the saying "*Natura non facit saltus.*" Rather would it seem that nature frequently does work by leaps, and that intermittence is often the rule, continuousness the exception.

Just as the principles of genetics are applicable to all animals and to plants as well as animals, they can be equally well applied to man, who, look at him in what way you will, whether as a little lower than the angels or a little higher than the beasts of the field, is in any case an animal. There is an anecdote, which some of you may remember, regarding Disraeli, who was speaking on one occasion about the origin of man, at a period when the idea of his evolution from anthropoids was not so generally accepted as it is now, and that even if the Mosaic account of creation is regarded allegorically, he might be nevertheless of angelic descent, dramatically exclaimed: "I, gentlemen, am on the side of the angels!"

I suppose nowadays no educated person outside Tennessee but would admit that mankind is only the highest type of animal; all laws, therefore, which regulate the lives of animals, including those which determine heredity, apply equally to him. If we were able to utilise the knowledge acquired in the breeding of animals for the improvement of our own race, we might eventually succeed in eliminating much that tends to keep the race physically and mentally far lower than is desirable. At present all that we can do is to educate the individual. Much, no doubt, can be effected by this, but education is useless unless there is educability, an inherent power to be educated. But civilisation has not progressed enough to permit even an endeavour to be made to promote amelioration of the race by breeding from the highest types. All that seems within the bounds of possibility is the prevention of breeding from the lowest types. Unfortunately, this last is at present, if not encouraged, at least so tolerated that there is a grave risk of an inferior type becoming established. For it happens that the reproductive faculties are, if anything, better developed in mentally inferior than in superior types. It is the object of Eugenics to combat this downward tendency of the race and give a lead towards its betterment. But how this predominance of the unfit can be prevented is a difficult and controversial problem with which we need not here and now concern ourselves. It is sufficient to mention that it is a problem which urgently demands solution, since the future welfare of the human race, and particularly of that portion of the race to which we ourselves belong, hinges upon it.

The study of animal genetics depends in the main upon physiology: probably that is the chief reason why I have been asked here to-day. Particularly it concerns the physiology of the sex cells, and the organs (gonads) in which these are produced. But the sex cells are not the only elements produced by the gonads. Both in the male and female other cells occur which exert a profound influence upon the organism. This influence is the chief cause of what may be termed its "maleness" or "femaleness," these qualities showing themselves not only in the physical features characteristic of the respective sexes, but also in the psychical attitudes which are equally sex-distinctive. One of the most interesting advances in the science of genetics has been to prove that these so-called secondary sex characters—whether corporeal or psychical—are dependent, not on the sex cells themselves, but on the other cells just mentioned. These other cells, however, do not exert their influence directly, nor even through the nervous system, but they manufacture specific chemical substances which are passed into the blood and, circulating throughout the organism, are brought into contact with every cell in the body. In this manner those modifications which manifest themselves as sex characteristics are produced. These chemical substances act like drugs and belong to the class of bodies known as *autacoids*; they either stimulate activity (*hormones*) or restrain activity (*chalones*). They are of relatively simple composition: some have been obtained in a crystalline form. The administration of extracts of the gonads to immature animals (or to animals deprived of their gonads, which for that reason do not exhibit the characters peculiar to either sex) is followed by the development of the special secondary sex features, both physical and psychical, characteristic of the sex from which the extract has been obtained. The substances in question are zoologically non-specific; in other words, it matters not how different the species of animal from which they have been obtained, the same results are yielded as if they had been derived from an animal of the same species as that to which they are administered. From this it is clear that genetics involves the study not merely of the structure and functions of the sex organs, but also that of their chemical products; this branch of the subject is increasing in importance every day.

Genetics has, however, not merely to do with the activities of the sex organs themselves. It is concerned also with the effect upon them of the nervous system and of internal secretions other than those produced by the gonads themselves. It has been recognized from the earliest times that the nervous system exerts a profound infleunce upon the sex organs and is in its turn profoundly influenced by them. But it is a matter of comparatively recent observation that there are influences acting from outside upon the sex organs which are not nervous. We term such influences "humoral," indicating thereby that they are conveyed to the sex-organs by the blood; in other words, they belong to the class of specific chemical substances or autacoids to which we have been alluding. Those of which I am about to speak, however, are not to be confused with the autacoids producing secondary sex characters, although some of them are also manufactured in the gonads. For example, the ovary manufactures hormones which cause ripening and discharge of ova and changes in the uterus which are not responsible for the development of the sex characters. That autacoids related to the reproductive function should be formed in the sex-organs themselves is not an altogether unexpected result. But the remarkable observation has lately been made that the pituitary body, a small ductless gland lying at the base of the skull, with no anatomical relationship to the sex-organs, produces autacoids which are carried by the blood to the ovaries, and excite the internal secretion of those organs so as to cause a ripening and discharge of ova and the accompanying changes in the uterus even in immature animals.

The story of the pituitary body is a real romance—with the distinction that there is nothing of fiction about it. Long known to be present in all vertebrates, its functions, like most of the other internally secreting organs, were until recently unrecognized. But the clinical observation of certain cases in which the gland had undergone enlargement and in which there was overgrowth of the skeleton and of the body generally, suggested that it might yield an internal secretion which is concerned with growth. This could be tested by experiments on young animals—experiments involving on the one hand administration of pituitary substance, and on the other suppression of the secretion by removal of the gland, or of the larger anterior part which is recognized as the part concerned with growth. I do not know whether people nowadays read stories so old-fashioned as "Alice in Wonderland," but I dare say some of my audience are familiar with that part of the narrative where Alice is able by eating a small cake, or drinking the contents of a bottle, or nibbling one side or the other of a mushroom, to increase or diminish her stature at will. I suppose no part of that charming and fantastic tale commends itself as more fantastic and more improbable than this particular episode. And yet we now know that something of the kind really does happen in nature. If we do not actually devour the pituitary body, we nevertheless take its secretion into our blood and it circulates through all our organs. And the effect it produces is to promote their growth. If it is yielded to the blood in undue proportion growth may be so much stimulated that a giant is produced. On the other hand, if from any cause this internal secretion of the pituitary body is not passed into the blood or not in sufficient amount, growth will be arrested. In confirmation of this, the feeding of young animals with this part of the pituitary has been found to increase their size above normal, whereas destruction of the same part arrests growth and produces dwarfs. Whether there is also a material in the internal secretion of this or some other gland which actively prevents growth is not determined, but is not altogether improbable.

You may perhaps be thinking that this is interesting, but what has it to do with genetics? This! The internal secretion of the gland in question not only influences the general growth of the body, but especially the growth and maturation of the generative organs. A young animal deprived of its pituitary not only ceases to grow but remains infantile: its sex organs do not mature. On the other hand, the administration of anterior pituitary stimulates not only general growth, but especially the development and maturation of the gonads and causes a naturally immature animal rapidly to mature sexually: if a young female, to produce ripe ova. This it does by acting as a stimulus to the internal secretion of the ovary itself, causing that organ to produce those substances which in adult animals effect maturation of ova and their fixation in the uterus.

Direct evidence that the pituitary substances which thus act on the ovary are poured into the blood can be obtained. They happen to be present in larger amounts during pregnancy that at other times. Their effect can then be got simply by injecting a few drops of blood from a pregnant female into a young female mouse. A short time after such injection the mouse's ovaries, which were very small and immature, became enlarged and exhibit unmistakable signs of maturation, the Graafian follicles, in which the ova are formed, becoming large and hæmorrhagic, like those which are, in mature animals, ready to discharge their ova. Even more remarkable than this is the fact that these substances do not remain in the blood of the pregnant female, but are got rid of by the kidneys; being passed into the urine, in which they occur in considerable amount. So that, instead of blood, a drop or two of urine injected under the skin of an immature female mouse will easily furnish unmistakable evidence of the existence of pregnancy, even at so early a stage that none of the ordinary signs of that condition is exhibited. This is known as the Zondek-Ascheim test for pregnancy. If the result is positive, it is diagnostic of that condition. Everyone, whether he belongs to the medical profession or not, can appreciate how important it may be to make an early diagnosis of pregnancy. Yet, by the laws of this country, no medical man is permitted to carry out the Zondek-Ascheim test unless he possesses a licence to practise vivisection, and even then he may only do so in a place registered under the Act. And he must also obtain from the Home Secretary a special certificate permitting him to keep a mouse, which has been injected with a drop of the urine to be tested, alive for the few days necessary to enable the result of the experiment to be observed. Such a simple diagnostic experiment, although required every day, cannot be made anywhere but in a registered laboratory and by a licensed individual. It happens that the laboratory, which we are now assembled to declare open, is at the present moment the only one in the country which undertakes this duty, although, strictly speaking, the resources of an establishment intended to be devoted to research, pure and simple, should not be diverted to a routine method of diagnosis which might as well be done anywhere else and by any medical man who has been instructed in the method.

It seems still more extraordinary that hospitals, where especially it is important to arrive rapidly and surely at a diagnosis, should debar themselves from making such necessary observations. This applies not only to the diagnosis of pregnancy, but even more to that of diseases, the rapid and efficient diagnosis of which depends upon experiments involving the inoculation of animals. Such experiments, which are perfectly simple, need to be performed without the least delay and the means of carrying them out should therefore be on the spot. But even when the hospital possesses a well-equipped laboratory, experiments upon living animals, whether for diagnostic purposes or not, are barred by the authorities responsible for the administration of the hospital. Samples of blood, of morbid growths, of urine, must be sent away to be tested on animals; no such experiments are allowed under the same roof as the patient the diagnosis of whose condition has to be determined. To an inhabitant of Mars this would seem an anomalous, not to say a paradoxical position of affairs. But to us the reason for it is only too apparent. It is due to apprehensiveness on the part of those who administer the affairs of the hospital that the subscriptions of antivivisectionists will cease to be forthcoming, and that the revenue of the hospital will suffer. On this account, they will not permit any part of the premises to be registered under the Act, nor any operations, or even inoculations for diagnostic purposes, to be made on

living animals. Only experiments or operations on human beings are permitted; a man may be vivisected, but a mouse may not even receive a hypodermic injection, although the operation on the mouse may lead to the cure of the man. This is not only wrong in principle; it is not honest, and honesty is always the best policy. The authorities need not fear for their revenue. It will surely be forthcoming. A hospital is provided for the treatment of disease, for which rapid and accurate diagnosis is of major importance. Considerations of finance or misapplied sentiment should never be allowed to override this fundamental principle. It is certain that every advance in modern medical knowledge has been due to experiments on animals. The knowledge a physician or surgeon brings to the bedside has, in its essence, been acquired and tested on animals. To be consistent, your antivivisectionist should never seek medical or surgical aid, but should consult the quack doctor who ignores medical science. The time is long past when a hospital surgeon was bold enough to declare that no experiments on animals had ever contributed to his knowledge or influenced his surgical procedures. The declaration merely showed his ignorance of the history of medicine and of physiology, on which all medicine is based. No surgeon or physician of any eminence would venture nowadays to make such an assertion. The whole science of medicine, the operations of surgery, the action of drugs, the application of preventive and sanitary measures to the health of the community, are all bound up with animal experimentation. Even if the Secretary of State is himself an avowed antivivisectionist and personally opposed to experiments on animals, he cannot choose but issue permits for them, for, if he did not already know it, he soon finds on assuming office how essential such experiments are for the progress of medical knowledge and for the public health. The antivivisection societies, in spite of the large sums of money they collect, have and can have no real influence; their propaganda will never prevent a sick person from calling on the services of a doctor whose knowledge is founded on vivisection. But your true antivivisectionist is either ignorant of this or wilfully blind. In most cases he is "anti" from ignorance. That this is so is apparent from the circumstance that titled persons—almost always ladies—will one week open a bazaar to obtain funds for antivivisection, the next week will issue an appeal to the benevolent to contribute to the funds of a hospital which is served by physicians and surgeons who owe their knowledge to vivisection, and the week after will be in the hunting field pursuing to complete exhaustion and death a miserable fox. Inconsistency, thy name is woman!

Some of you may think that I have departed from the immediate purpose of this meeting by alluding to the subject of vivisection. But it must be understood that all the work of this and kindred institutions is based upon vivisection. Literally the words means the dissection of living animals, and therefore every surgical operation is a vivisection. But technically and legally it means any experiment on a lower animal of any kind, whether by operation, or by injection, or merely by feeding. This definition of vivisection is not mine; it is that given by the Act of Parliament regulating the practice. No one can make any sort of experiment, whether it is painful or not, upon a vertebrate animal—even upon a fish or tadpole—without a licence from the Home Secretary. That is to say, provided the experiment is made to advance knowledge and not for sport. In sport any cruelty is tolerated. But no farmer may test the effect upon his stock of a novel food without a licence; if he does this, he makes an experiment for the purpose of advancing knowledge, and, if his animals suffer in any way from the change of diet, he renders himself liable to prosecution. Thousands of experiments on animals are recorded every year and reported to Parliament by the inspectors under the Vivisection Act. At least 99 per cent. involve no operation; they consist merely of feeding, or at most of hypodermic injection. By far the greater number are done in connection with and by the direction of the Public Health Services of the country. All operations which involve incision are performed, like surgical operations, under profound anæsthesia; and if an animal is kept alive after operation, it is treated in exactly the same way as a hospital patient, the only difference being that if the animal appears to be suffering pain, it is killed painlessly by chloroform. I hope it is not necessary to assure you ladies and gentlemen here present, that we who experiment upon animals are not the hopelessly cruel creatures painted by the antivivisection agitators; we have every regard for the sufferings of animals, but we have a greater regard for the sufferings of humanity. Very appropriate, therefore, are the words which Professor Crew has caused to be carved at the entrance of this Institute, which I now formally declare to be opened, "To the advancement of science and to the service of mankind this building is dedicated."

## Foreign Meat in Cartons.

A few weeks ago packaged meat from North America was landed at Liverpool. It was in the form of joints, steaks, chops, etc., and was sold in provision stores in attractive cartons—that is to say, it was sold in a form calculated to make a ready appeal to housewives. This class of meat is shipped under one of the latest quick-freezing processes, and it is claimed by the company concerned that the whole of its fresh constituents are preserved on thawing out the meat. That there are distinct possibilities of this trade developing may be gleaned from the fact that Australia is alive to its possibilities, and already arrangements are being contemplated there for having exhibits of this quick-freezing meat preserving process on view at their forthcoming shows. The first question that naturally suggests itself in view of recent correspondence on boneless beef is—what form of inspection does this new form of meat receive at the ports from which it is sent? But there are other questions. Will the home butcher remain apathetic should this meat, as is contemplated, be sold out of all and sundry provision stores? It is a sad, but nevertheless, a true commentary that meat sold in a convenient form regardless of its inherent merit or otherwise, or whether or not it is of foreign secondary origin makes a readier appeal to the majority of British housewives than high-class meat from shops in which nothing but the best is touched. It is this problem the exponents of national mark beef are endeavouring to solve, but the solution of it is another matter. Should this carton meat trade develop unheeded it will undoubtedly further retard home-fed beef from getting the place it is justly entitled to on the home market.—*North British Agriculturist.*

The Veterinary Record.

September 6th, 1930.

## Animal Genetics.

The opening of the Animal Genetics Department of the University of Edinburgh marks a further step in the progress of biological research in this country since the termination of the War. The new buildings are situated on the " King's Buildings " site on the slopes of the Blackford Hill, somewhat to the East of the Royal Observatory. They occupy a position which ensures that they will not readily be buried or obscured by southern extensions of the City of Edinburgh.

It is probable that no single subject of the group of what are now known as the Biological Sciences has made more spectacular advances during the past decade than has Genetics. During the last century or less the art of animal breeding, chiefly by empirical methods, has made tremendous strides. Man has slowly but surely moulded his animals to suit his requirements; he has fashioned new breeds by the expensive methods of trial and error; he was not pressed for time, and what he did not accomplish to-day, he or his sons did to-morrow. It is reasonable to assume that with the modern urge for speed and hurry, the breeder, along with other members of society, is no longer content patiently to continue the pace set by his forefathers; he, in his hurry, turns to whatever may seem to promise him short cuts to the achievement of his desired ends. He has encouraged the development of Animal Genetics in the somewhat selfish hope that it will rapidly recompense him for his patronage.

It is, however, possible, nay probable, that the true service of the science of Animal Genetics, the elucidation and the application or utilisation of the multitudes of the laws of reproduction, will be realised not in the immediate future, but by the generations of breeders not yet born. Before constructive policies can be formulated, there must be analysis. Before there can be a rebuilding, there must be a careful survey of the fabrics already existing. It is possible that some of the so-called strongholds of modern belief rest upon foundations which are themselves insecure, and the demolition necessary to unmask these rotting basements will assuredly be viewed with impatience by those who wish to enter into and enjoy the new domain. Thus it is with Animal Breeding Research; there are no short cuts. An organisation genetically as complicated as a breed of milking-cows does not so readily lend itself to destructive analysis and constructive anabasis as the tyro may think. The processes of studying the modes of inheritance of unit characters or groups of characters must essentially be prolonged.

Sir Edward Sharpey-Schafer, in his opening remarks (given at the commencement of this issue) referred to the costliness and slowness of research work on problems of inheritance in horses; he might with equal truth have said the same about each of the domesticated animals. The limited number of the progeny, the extended gestation periods and the seasonal limitations of the œstral phenomena, together with the difficulty of evaluating correctly variations in individual reactions to a changing environment, combine to restrict the immediate applicability of the results of research work obtained from a study of the laboratory animals to the larger farm animals. Principles of inheritance established for the guinea-pig, the mouse or the rat, must be tested before they can be put into practice by the farmer. But the rôle played by the small animals and even by *Drosophila*, is none the less important and must of necessity come first.

It must not be thought that problems of genetics are solved merely by selecting the appropriate parental stock, effecting the necessary matings and waiting until the resulting offspring exhibit, or do not exhibit, particular characteristics. Problems of comparative physiology, of biophysics and bio-chemistry, of nutrition and mathematics, and even of pathology, recur with discouraging frequency and demand solution or allowance before progress can be made with the main problem. It is, in fact, along some of these ancillary lines that important practical results have accrued and are to be expected in the immediate future, rather than in the fields of pure genetics.

The establishment in Great Britain of a centre where research work into problems of animal genetics and animal breeding can be actively pursued is a matter for satisfaction and congratulation. An empire whose agricultural prosperity depends to such a large extent upon its livestock pre-eminence cannot afford not to be equipped with a chain of research institutions seeking to throw light upon the many aspects of the biology of the animal and its surroundings. We would confidently assert that the establishment of the New Department of Animal Genetics at the University of Edinburgh, under the able Directorship of Professor Crew, is another link of deep significance in that all-important chain.

May we wish it every success?

# Clinical Report.

## Milk Fever—Some Facts, Theories, and a Suggestion.

By R. H. Smythe, M.R.C.V.S., Camborne.

It may now be accepted as proven that a blood-calcium deficiency is responsible for some, at least, of the symptoms of milk fever and allied conditions. It may also be granted that in a fairly high percentage of cases such symptoms can be *temporarily* alleviated by the direct or indirect introduction of suitable calcium salts or organic compounds into the blood stream. But even the most enthusiastic exponents of calcium therapy must now admit that in country practices, where patients are usually many miles from the surgery, udder inflation is still by far the most reliable, economical and sure method of treatment. The efficient intravenous injection of the correct amount of a suitable calcium salt immediately restores the calcium content of the blood to normal, but owing to the inadequate rate of exchange and the rapid elimination through various channels, only *repeated* injections can maintain that level. The result is that only partial recovery occurs or else that in from six to twenty-four hours the blood-calcium has been again reduced to danger point and a relapse ensues.

Apart from this frequency of relapse, the injection of large quantities of a calcium compound directly into the blood-stream is not entirely free from risk of sudden collapse, particularly in aged cows, whilst administration by either hypodermic or intramuscular routes is frequently followed by abscess formation, in spite of the attention to asepsis possible in the case of the average cow in the average shed.

Calcium administration, whilst affording partial or temporary relief, fails to remove the cause of the disorder, whereas a single udder inflation in most instances is followed by complete recovery, relapse occurring in only a small percentage of cases associated with a too-rapid restoration of mammary activity. It is therefore apparent that the causes which operate to produce blood-calcium deficiency persist for a matter of days and that treatment must be directed either towards repeated administration of calcium through suitable channels or by attacking the structure responsible for the deficiency, *viz.*, the udder. Repeated clinical evidence proves that it is by no means essential that this organ shall be in a condition of lactation nor even that the animal shall be pregnant [see Case Note (1)], whilst cases occurring during the gestation period, even when the cow is " dry," are too common to excite comment.

It therefore appears that blood-calcium defiency can occur, with all the characteristic symptoms of milk fever, at periods when there is no elimination of calcium in the milk, and although the increased drain upon the reserve after calving must be acknowledged, it still remains doubtful whether this is directly associated with the deficiency. Also it must be noted that the majority of cases occur within 36 hours after calving, before any great quantity of milk has been withdrawn from the udder, and only a few cases later, during the height of lactation, and nearing its termination when the calcium drain is greatest.

It would be curious if Nature, which has apparently provided most glandular structures with an internal secretion, neglected this feature in the case of one so essential and so highly developed as the mammary gland.

Gaines (1) and other workers, by experiments involving blood transfusion from lactating goats, came to the conclusion that a hormone is present in the blood of pregnant females which inhibits lactation, although apparently they were unable to determine its origin. Assuming the existence of such a hormone, it does not appear unreasonable to suggest that it may be derived from the cells of the udder itself and that its function may be inhibitory, or in other words that it may act as a safety device either against undue lactation, or on the other hand, that it may control the composition of the milk and maintain its ingredients in safe and suitable proportion for the nourishment of the young animal.

In normal females, with normal milk-producing organs, the production of hormone would be normal, but in the over-developed udders of modern cows and goats, one may assume that the capability in this respect would be correspondingly increased, particularly immediately after parturition when the udder is at its largest and its cells most active. One would naturally expect such a hormone to be antagonistic to the parathyroid and suprarenal secretions, both of which are intimately bound up with lactation, the one controlling the highly important calcium supply and the other maintaining an efficient vascular control.

Clinical evidence from every source goes to show that the factor which precipitates an attack of milk fever is an *abnormal* stimulation of the udder cells. The cow, which by selective breeding and intensive feeding has become an abnormal, highly developed milking machine, calves with a potential milk yield far beyond the requirements of the calf and greatly in excess of what her own body reserves can safely supply. The mammary hormone, also poured out in excess, inhibits lactation, thus providing the first clinical feature, failure to " draw " or develop a good " bag " as in preceding lactations uncomplicated by milk fever. The parathyroid and suprarenal glands being temporarily thrown out of action, allow the calcium content of the blood to fall to danger mark with lowered blood pressure and tendency to circulatory stasis.

These circumstances, I venture to suggest, with due regard to the unproven nature of the theory, give rise to milk fever as well as to those cases spoken of as " false " milk fever and " grass staggers."

What are the other common influencing factors which may produce a sudden, abnormal stimulation of the mammary tissues?

From clinical evidence we may assert that these fall into two groups (*a*) dietetic; (*b*) ovarian activity, *c.f.* œstrum.

Of the former, the chief is sudden change from dry food (even when highly nitrogenous) to fresh green food [see Case Note (2)]. A similar stimulation may occur among cows at pastures when rain or moist foggy weather follows a dry period, producing rapid growth of grass with an increase of sap; in fact, it appears that the incidence of milk fever bears a direct relationship to the chlorophyll content of the fodder rather than to the protein content.

Œstrum, when it occurs in conjunction with a dietetic stimulus, undoubtedly favours the production of colostrum,

and it is reasonable to suppose that continued lactation may be prevented by the production of an increased quantity of mammary hormone, with resulting parathyroid insufficiency, when the secretion is excessive.

Cases associated with œstrum are seldom severe and, from the fact that they escape correct diagnosis, many recover without any appropriate treatment.

Udder *inflation* is not essential to recovery from milk fever. Injection of small quantities of normal saline into each quarter produces a similar response, though not always so rapidly, and it appears that recovery is not wholly dependent upon intrammary pressure but more probably is dependent upon nervous " shock " or depression of nerve endings within the milk sinuses and alveoli, causing a temporary cessation of hormone production as well as of lactation, resulting in parathyroid and suprarenal recovery, restoration of calcium balance, rise of blood pressure and disappearance of the symptoms. It is an interesting, and I believe unrecorded, clinical observation, that inflation of the udder during the early stages of milk fever, whilst the cow is still standing, produces a temporary exaggeration of the symptoms, even in a normally placid subject. Inflation would tend to expel excessive calcium contained in the udder back to the blood stream but, at the same time, pressure within the alveoli would exert a " squeezing " effect upon the cells and drive out free hormone.

### Summary.

Suggests the existence of a mammary hormone, inhibitory to lactation, antagonistic to parathyroid and possibly suprarenal secretions. The symptoms of milk fever may result from hypersecretion of hormone dependent upon abnormal stimulation of udder cells.

Reference.

(1) *Milk.* (Heinemann.) . Pp. 38-40.

### Case Note 1.

Two barren cows, neither of which had produced milk for the past six months, were tied up to feed. After a month on cake and hay, their progress was unsatisfactory. Therefore, acting upon the advice of a friend, the owner decided to try the effect of boiled cabbage and roots. After three feeds of this mixture, both cows went down with acute " milk fever," from which they promptly recovered after udder inflation.

### Case Note 2.

Fourteen cows, in various stages of pregnancy, were turned during the summer into a meadow which had recently been flooded by a stream carrying sewage. During the week following, eight of these animals developed milk fever. Four cases were attended with violent convulsions. Six cows responded in from two to eight hours to udder injection but two, showing only twitching of the eyelids and ears with rambling, took a week to recover fully.

### Case Note 3.

Two cows which habitually developed milk fever shortly after calving, were fed for a fortnight previous to parturition on a diet low in protein but with the addition of cod liver oil and sterilised bone meal. Both animals developed milk fever as hitherto.

# Abstracts.

**[On Certain Diagnosis of " Mastitis-Streptococci in Milk Offered for Sale " and on the Judgment of Milk Containing Streptococci in Veterinary Food Control.** Dr. F. Schönberg, Berlin. (*B.T.W.*, 1930, No. 14.)]

It is astonishing that so many papers are written on streptococcal mastitis and so little attention is paid to milk which contains these organisms, and to the judging of it; whether it comes from udders that are severely diseased or from some other origin. Sample and mass milk must be examined efficiently for the presence of streptococci. This is not always easy. The writer lays down conditions which must be fulfilled before one can state that the streptococci met with come from a diseased udder, and further, whether such milk is fit or harmful for human consumption. Commonly, a sample is taken from a container which holds 20-40 litres. If a contributing cow is suffering from a severe streptococcal mastitis, there are usually numerous polymorphonuclear leucocytes scattered about in the milk, but they are only to be found sparingly in the milk sediment. Similarly, streptococci are spread throughout the whole volume of the milk, but demonstration of them in the sample is usually easy. When streptococci are found in the milk sample, it must be proved that they were pathogenic in the udder. The demonstration of a large pus content as a sign of mammitis, however, is only possible relatively seldom and as a rule only when the milk is taken from several affected cows. Also, one has to distinguish between the kinds of streptococci and, as Bongert has shown, the finding of these organisms alone is in itself no evidence that they have come from a cow with streptococcal mastitis. Furthermore, it is well known that the mucous membrane of the udder is often colonised by streptococci which resemble the usual cocci that are pathogenic (mastitis-streptococci) and it has been conclusively shown that the former (benign) cocci cause no disease of the udder tissue. On the other hand, it must be proved that any particular mastitis found has been caused by organisms discovered in the milk. In the writer's city food-inspection office, in order to guarantee a certain diagnosis, the presence of mastitis-streptococci is only considered as positive when the following conditions are fulfilled:—

(1) When there are found in a single field of a sediment smear long chains with sharp curves, whose individual bodies are arranged close together in pairs.

(2) When polymorphonuclear leucocytes, single or in clumps, lie in the immediate neighbourhood of these organisms; the chains appear to be adherent to the leucocytes.

(3) When there is phagocytosis.

(4) When the individuals of the chains show partial capsule formation, which is thought to be a protective manifestation.

The first three points are strictly necessary for a diagnosis of mastitis-streptococci in the milk: the last point is of less importance.

About the diagnosis of mastitis-streptococci in sample milk taken direct from the cow much has been written (the writer gives references) and this matter need not be discussed here, as such diagnosis offers no difficulty even

to non-experts. The writer now mentions two observations which he has made in the last year from 23,000 tests carried out—concerning variations of *Streptococcus agalactiæ* Guillebeau; these are made clear by mico-photographs, of which 12 are shown on an extra sheet. Secondly, mention is made of variations shown in cultures of the cocci (too lengthy to detail here, but of great significance for milk inspectors). Dr. Schönberg goes on to speak about human illness that has been ascribed to streptococci which were found in milk drunk by the sufferers. He, with support from other workers, opines that that circumstance is not probable. He thinks that the causal organisms were originally of human origin and were passed into the udder by the milker's hands, where they set up inflammation; that actual bovine udder-pathogenic cocci were not to blame. Human streptococci are well known to be pathogenic for a cow's udder. If all streptococci-containing milk was pathogenic for man, then illness epidemics would be constant, but that is not so, although these organisms are so commonly found in milk. Some milk from affected udders is, of course, so much altered and unpalatable that it is not taken, and as regards milk less changed, the amount of inflammatory products in it (leucocytes, etc.) is of importance in judgment of it.

The paper is concluded by 38 references.

J. T. E.

---

**[Anæsthesia Produced in Equines by the Intravenous Injection of Chloral Hydrate.** Marcenac and Lemétayer. *Bull Acad. Vét. France,* 1930, March. Vol 3, pp. 141-146.]

The authors review the records of anæsthesia by the intravenous injection of chloral hydrate which have been published since 1875, and point out that in the majority of cases the quantities administered are not based upon the weight of the animal anæsthetised, or at least, no relationship between the dose and the size of the animal is definitely mentioned. Humbert in 1875 carried out some experiments and gave an account of the effects produced by doses ranging from 30 to 70 grammes on horses of "ordinary size."

In their own experiments, which now cover about forty cases, the authors have attempted to arrive at optimum doses for varying periods of anæsthesia. They find that a dose of eight grammes per 100 kilos body weight produces a condition of somnolence which lasts only for some fifteen minutes. On increasing the dose to 10 grammes per 100 kilos they obtained irregular results. Of 16 animals given this dose, seven were completely anæsthetised, seven were moderately anæsthetised, and in the other two cases the result was unsatisfactory. A further increase of one gramme to 11 grammes per 100 kilos yielded constantly good results. The anæsthesia was complete and of sufficient duration to allow lengthy operations, such as ovariotomy, *via* the flank, trephining, neurectomy, etc., to be carried out satisfactorily. With 12, and still more with 13 grammes per kilo, recovery from the anæsthesia was delayed unnecessarily; in one case the animal did not recover until 12 hours later.

Special note is made of the fact that starvation favours the action of the chloral. In cases of operations upon cryptorchids animals may be fasted for three or four days, and if that is done the dose of chloral may be reduced to eight grammes per kilo, without adversely affecting the result.

For injection the drug is dissolved in normal salt solution containing potassium citrate in the proportion of 1 in 5.

It has to be remembered that chloral hydrate must not be allowed to gain access to the connective tissue, and special precautions must be taken in making injections to prevent this. The authors inject the solution by gravity, using a graduated glass cylinder, to the bottom of which is attached, by means of a ring and a glass tube, a length of rubber tubing having at its other end a short length of glass tubing to allow the passage of the last of the liquid to be observed. Attached to this a short piece of rubber tubing with an adapter to fit a Dieulafoy trochar, eight centimetres long and two centimetres in diameter, which the authors use for puncturing the vein.

The trochar is pushed into the vein in the direction of its axis and tepid chloral hydrate solution is allowed to run down the tubing until this is full. The adapter is then pushed into the socket of the trochar and the reservoir containing the solution is raised so that the liquid is slowly injected. Should any movement on the part of the animal take place, so as to risk the trochar coming out of the vein, the reservoir is lowered and the inspection window in the tubing is watched to see whether blood enters the tube or not. When only a few cubic centimetres remain to be injected, the reservoir is lowered again so that blood runs into the tubing and this effectively washes all traces of the solution out and prevents the escape of any of it into the connective tissue when the trochar is withdrawn.

It requires six to eight minutes to carry out the injection and the authors always perform the operation on animals which have previously been cast.

Chloral anæsthesia has been induced in the standing position, but the risks of accident are greater, and there is also the chance that the animal may fall off the operating bed.

In the course of the discussion which followed, Maignon said that the important point was the dose given, for if the dose be too large the damage is done directly the chloral has entered the vein. He saw that Pagnon got over this difficulty by injecting very slowly and watching for the first sign of reeling. When this occurred one was near the requisite dose.

Cocu said that he had combined the injection of 0·5 g. of morphine with 50 to 60 grammes of chloral by rectal injection for the operation of inguinal hernia, and was quite satisfied with the results. The anæsthesia lasts 15 to 20 minutes.

A. L. S.

---

## Collars for Dogs.

An amendment of the Control of Dogs Order, 1930, published in the *London Gazette* on the authority of the Minister of Agriculture and Fisheries, provides that:—"Where any dog is found in any highway or place of public resort not wearing a collar as prescribed in Article 1 of this Order, the owner of the dog and any person in charge thereof, and any person allowing the dog to be in the highway or place of public resort shall each be guilty of an offence against the Diseases of Animals Acts, 1894 to 1927."

# N.V.M.A. Divisional Reports.

## Mid-West and South Wales Division.

### President's Address at Bridgwater.

Captain Atkinson on "The Diagnosis of Anthrax."

Most appropriately, the members of this Division selected the delectable heart of Somersetshire for their summer meeting on Friday, July 18th, being prompted in their choice by the cordial invitation extended to them by Mr. W. M. Scott to bring their ladies and enjoy the garden amenities of his residence at Bridgwater.

The threat of rain affected the attendance of what was planned primarily as a social outdoor function, but the very considerable company who journeyed to the loyal and ancient borough were rewarded by a time of thorough enjoyment. The members found much to instruct and interest them in Captain Atkinson's paper "Some Remarks on the Diagnosis of Anthrax," and subsequently shared with the ladies the delights of tennis, croquet and clock golf in the charming and, after all, sunny grounds. The company also enjoyed the hospitality of Mr. Scott at tea, after which a round was made in the old-world garden.

There were present Mr. W. R. Watson (President) and Mrs. Watson, Mr. Scott, Miss Scott and Miss Joan Scott, Major W. N. Wright (President, Western Counties Division, N.V.M.A.), Mr. A. S. Adams, Mr. J. J. Aveston, Captain and Mrs. George Atkinson, Captain W. B. P. Beal, Mr. E. C. Bovett, Mr. and Mrs. A. J. Cattell, Mr. and Mrs. E. P. Evans, Captain A. F. Good, Principal F. T. G. Hobday, Mr. C. Masson, Mr. and Mrs. C. E. Perry, Miss Piddington, Captain J. C. S. Powell, Mr. and Mrs. A. E. Roberts, Mr. F. Tonar, Captain and Mrs. M. Stirling Webb, and Mr. and Mrs. T. B. Yarrow.

The President (Mr. W. R. Watson) occupied the chair at the meeting.

The minutes of the previous meeting of the Division, which had been published in the *Veterinary Record*, were taken as read and were confirmed and signed.

Correspondence.

(1) From the following gentlemen, apologising for their inability to attend: Sir Layton J. Blenkinsop, Mr. T. J. Brain, Lieut.-Colonel J. W. Brittlebank, Professor J. B. Buxton, Mr. W. S. Codrington, Mr. J. C. Coleman, Major A. C. Duncan, Mr. E. P. Edwards, Mr. R. W. Hall, Professor Walker Hall, Major G. E. Henson, Messrs. Howard-Jones, J. W. Hall Masheter, R. Moore, J. L. Perry, W. D. Rees, H. S. Robinson, Dr. W. G. Savage, Major E. E. Seldon and A. Veitch.

(2) From Mr. Howard-Jones, Chief Veterinary Officer to the County of Glamorgan, relative to certain action which was contemplated by the Welsh Board of Health in consequence of their dissatisfaction with the results of the application to cattle in their area of the double-intradermal tuberculin tests.

It was decided to refer this letter to the Council of the Division for consideration and report to the next general meeting.

### Presidential Address.

The President (Mr. W. R. Watson) now gave his address from the chair, saying that at their last meeting it had been suggested to him that he might take advantage of that occasion to make a few observations on his opinion of the profession to-day.

He had been qualified now for 24 years, and in thinking over that matter—as to what he had to say to that meeting—he felt that the best thing would be for him to try to give them his impressions of the profession as he had seen it in those 24 years. Generally, he thought, the profession to-day was more scientific and less commercial, as was evidenced by the fact that the veterinary surgeon nowadays was more bent upon understanding his case, treating it upon rational grounds and receiving the credit for the professional nature of his services, whereas when he (the President) went about as a pupil, the impression he gathered was that the practitioner's main motive in attending a case was that it was good for the day book. He thought that attitude was dying out, and a great deal of credit for that salutary process was due to the research work carried out by the various research bodies and institutes, of which work they were now reaping the benefit.

Twenty-four years ago, when one went to see a case of milk fever, it was usual to treat the animal with an udder injection, give a hypodermic injection, leave something to be rubbed into the loins and half a dozen drenches to follow, and to see the cow two or three days later. To-day the usual procedure was to employ udder inflation or Calcium Sandoz and to rely chiefly on one or both of those measures, and if there was any indication of heart failure one now nearly always used strychnine or adrenaline.

The veterinary surgeon of to-day was more concerned for the good name of the profession than he used to be. There was no doubt that the holding of such gatherings as that at which they were present that day was a very great help in that connection. Those who met together on such occasions were not only ready but anxious to help one another over their difficulties, without thought of fee or reward, in a professional and brotherly manner which was all to the good.

Some of them were inclined to grumble that they had to work very hard for what appeared an inadequate pecuniary return; they had an expensive and (for some of them) an arduous time before they qualified and then, in spite of their efforts, they made a living but nothing more. That, he thought, was the wrong way to look at the matter—although he feared that he often looked at it in that way himself—because veterinary work as a money-making job pure and simple was always a painfully dull and slow game. He thought he could sum up the position by saying that it was not so much what they got out of the profession that mattered, but what they put into it. (Hear, hear). A great many of them went on year after year; they saw unusual and sometimes very interesting cases, yet they never took the trouble to describe them in their professional journals for the benefit of their fellow-practitioners, which he thought was a great mistake. He was guilty of that himself, he admitted, and the only excuse he would make was one which could doubtless be pleaded by all of them—that he had not much time.

That was the position of the profession to-day as he saw it. Looking to the future, he thought they were going

to enjoy a better status than ever before, because the public and the State were beginning to realise that the veterinary profession was a link—a very strong link—in the chain of factors that safeguarded both public health and national finance. An epidemic which spread through the population of this country caused a tremendous loss and a lot of suffering, and an epidemic, such as foot-and-mouth disease, which spread through cattle, brought everything to a standstill in the locality of the outbreak. It was only by regular, quiet, careful work on the part of the local man, who in his own little sphere pursued his professional activities conscientiously and well, that an outbreak of such terrible plagues as foot-and-mouth disease could be checked before it assumed epidemic proportions.

Proceeding, the President said that he had had several pupils, and he thought they were getting a very good class of man into the profession; their knowledge of the work of the various classes through which they had passed, especially of physiology, pathology and bacteriology, was very creditable. He thought they had more scientific knowledge than when he qualified, but they were very handicapped because they did not get the opportunity of becoming intimate, until they got into practice, with the animals with which they would have to deal. A great many of them were town-bred lads, and they were often inept at catching hold of an animal at all. In his view, now that the five years' course was instituted, there should be a compulsory period of practical training amongst animals, possibly on a farm, so that the student could obtain a knowledge of the animal in health and learn how to handle and control it. In the same connection, there were few students who came to him who were able to ride a horse; he thought they would agree with him that such an inability was a grave and incongruous defect in a man who proposed to practise in a country district. It was still of real importance that every College should have its riding school at which students should be given regular riding lessons. He was told by a Glasgow friend, whose hobby was riding, that it was very difficult to get a horse to ride nowadays; therefore, if these students were to be located in the cities, he (the President) did not see how they were going to get the requisite opportunities unless the curriculum stipulated that they should put in so many attendances at a riding school.

Another thing he had noticed in the profession was that gradually its members were assuming a better position socially. He did not think that mattered a great deal; a man was judged by the company he kept. In any event, in country practice they were too busy to engage in a great deal of public work and the fulfilment of social engagements. If a man took up a position on many local bodies it was practically impossible for him to fulfil the duties involved. In the face of these difficulties he did not see how the country practitioner could make himself a social asset, because he was entirely at the call of the public already in his professional capacity, and if he made arrangements to do anything outside that sphere, on 50 per cent. of such occasions, if not more, he would find that something would come along to prevent him from carrying out his duties.

The President, who was accorded a hearty vote of thanks for his address, now called upon Mr. Scott to move the resolution standing on the agenda in his name.

## The Administration of Active Biological Products to Animals.

Mr. W. Scott moved the following resolution:—

"That this Association is of opinion that the time has arrived when legislative measures should be introduced, making it illegal for any person or persons other than fully qualified veterinary surgeons to administer *active* biological products to animals."

In doing so, Mr. Scott observed that he proposed to adhere to the spirit of the saying that a man in his own house should not be too verbose. Moreover, he felt quite sure that the resolution standing in his name would require very few words from him to commend itself to their notice and sympathetic consideration. He was actuated to bring that matter before them that day by the following circumstances:—He was asked to investigate a very serious outbreak of specific abortion in a rather valuable dairy herd, some hundred miles from there, in the early part of this year. To his horror and surprise, on investigating the matter and enquiring of the owner as to the various aspects of the outbreak, the latter informed him that he had inoculated all his animals—young and old, empty and full—with the active virus of specific abortion, supplied to him by a firm of quack animal medicine vendors.

On the face of it, did it not seem absolutely inconsistent, grotesque and incongruous that in these days of enlightment a layman should be allowed to manipulate indiscriminately, and with the smallest apprehension of the seriousness of the medicine that he was using, the active, live organisms of a disease such as specific abortion? Let them just conjecture in their minds what numbers of bacteria, virulent and living, would be distributed from the time that he took a given quantity of the medium from a presumably sealed bottle until it was safely delivered under the skin of the animal that he was inoculating. Such men should be protected against themselves, and the only way to effect this was by legislation.

The Ministry of Agriculture supplied an active virus for this particular condition and rightly stipulated that it should be used only by qualified practitioners; surely then, in the name of all that was reasonable, that ought to be all-sufficient for the general public. It might be urged that by legislating in that way one would be doing away with the liberty of the subject or with freedom of action; but against that they must look at the potential dangers that were being run compared with such a harmless proceeding, for instance, as going outside one's house to buy a packet of cigarettes after a certain hour. The fact must not be overlooked that the distribution of those active germs was a source of potential danger to the public, and he submitted that they, as practitioners, should use all the powers that were in them to point out to the public authorities the dangers that they were running by not legislating on that particular point.

All his remarks had applied specifically to abortion, but one might include distemper—the same arguments would apply to that, in time. Undoubtedly, at the moment, the technique involved in the manufacture of the active virus of distemper was so scientific and complicated that the commercial element and the animal-medicine producing type would not venture upon it, but the time would come when the technique of distemper virus production would be so

simplified that it would become a commercial proposition. Then, if the law did not interfere, instead of the virus inoculation process reducing distemper to the minimum it would be a potential source of infection, if it were indiscriminately used.

Mr. A. E. Roberts said that he had great pleasure in seconding the resolution, as in his view it was a most desirable thing that those products should be handled exclusively by the members of the veterinary profession.

The resolution was carried unanimously and the Hon. Secretary was instructed to forward it both to the R.C.V.S. and the N.V.M.A.

The President now invited Captain Atkinson to read his paper, which was as follows:—

## Some Remarks on the Diagnosis of Anthrax.

By George Atkinson, m.r.c.v.s., Diseases of Animals Division, Ministry of Agriculture.

As the time before me to-day is short, I propose to confine my remarks almost entirely to the diagnosis of anthrax in the field by the veterinary surgeon and chiefly to recapitulate the technique of the microscopical examination of material taken from the dead animal.

We all know that the definite diagnosis of anthrax in either the living or the dead animal is entirely dependent on the demonstration of anthrax bacilli in the body fluids. In the living animal, except in localised lesions, they will most probably not be found, because in cattle and sheep the organisms do not invade the blood stream until shortly before death and in pigs and horses they may not appear in the blood stream at any time. The examination of blood in the fæces may or may not reveal the organism. In the dead animal, however, the bacilli are found quite easily in the majority of cases, provided that putrefaction is not too far advanced. In cattle, sheep, rabbits, guinea-pigs, rats and mice the anthax bacilli will be found in the blood stream, and a small incision in one of the ear veins will provide sufficient blood to make smears and obtain a swab, although one should be careful to ensure that one is getting blood and not serous exudate, because bacilli may be scarce in the latter. In the horse, bacilli may or may not be apparent in the blood and, in cases where the throat is affected, it may be necessary to examine the lymphatic glands in that region or the exudate in the surrounding subcutaneous tissue; or, if the examination has got as far as making a *post-mortem* in the enteric form, the lymphatic glands associated with the intestinal tract. In the pig, the bacilli will most probably be found not in the blood but in the lymphatic glands in the region of the throat and in the exudate in the surrounding subcutaneous tissue. In the dog and the ferret the organisms will most probably be found in the blood, but it may be necessary to explore lesions in the pharyngeal region. Incidentally, it is advisable to place a sack saturated with disinfectant, or saturate the ground with disinfectant, beneath that part of the carcass on which one is about to operate, so that any infective material which may overflow will do no damage.

In making smears for staining by M'Fadyean's method, it is important to avoid mucus and muscle juice because these substances will give a purple reaction with methylene-blue; this is one reason why smears from discharges from the natural orifices are liable to be misleading. The most convenient way to make a smear of blood is to place a drop near one end of a slide with the point of a knife or, better still, with a small pipette, lower the edge of a second slide through the drop on to the surface of the slide on which the blood has been placed; this second slide is held at an angle to the first and the drop of blood, by capillarity, spreads itself in the angle between the two slides. The edge of the second slide is then stroked along the surface of the first slide and the blood is spread out in a film whose thickness can be regulated by the angle formed by the second slide. The smear should be as thin as possible. Incidentally, it is advisable to use new slides. The proper cleaning of slides takes more time and trouble than they are worth and an imperfectly cleaned slide from a previous case may lead to an error in diagnosis; also, if the slide is not perfectly free from grease, a good smear will not be obtained. In making a smear from a gland, the simplest way is to cut the gland in two, hold one half up with a pair of forceps, and place the slide on the cut surface, taking an impression.

For staining the smear we have in the M'Fadyean Methylene-blue Reaction an extremely valuable aid to diagnosis. The reaction depends on a disintegration of the bacillary capsules which occurs when they are imperfectly fixed. Imperfect fixation is attained by holding the slide, smear upwards, in the flame of a spirit lamp until it is warm enough to be uncomfortable when placed on the back of the hand. Holding the slide in the flame for about one second three times is usually enough. Too much heat fixes the capsules and spoils the reaction and may cause undue distortion of the bacilli. Having fixed the smear, place on it a few drops of an old 1 per cent. aqueous solution of methylene-blue—not the artificial polychrome methylene-blue, which gives to the smear a purplish tint which is liable to be misleading. Allow the methylene-blue to act for half to one minute and then wash it off with water and dry the slide with clean blotting-paper or by waving it in the air—not by heat. Now hold the slide so that the light is reflected from the surface of the smear to your eye. If the case is one of anthrax, a very distinct purple tint will be seen but, if there are no anthrax bacilli present, the smear will be blue or green or, if the fixing is correct, there may appear to be nothing left on the slide. Now examine the smear under the microscope using the 1/12th inch oil-immersion lens. In the positive case purple material with a granular appearance will be seen surrounding and in between the bacilli. This is the disrupted bacillary capsules. For examining the morphology of the organisms the best and clearest specimens will be found along the edge of the smear. The anthrax bacilli appear as chains of two, three or four (rarely more) organisms surrounded by a capsule. The ends of each unit of the chain are square cut or concave. The ends of other organisms have a more rounded appearance and where the organisms are in chains, as may be the case with the malignant œdema bacillus, the chains are longer and their units more slender. Moreover, the colour is distinctive. Anthrax bacilli have what appears to me to be a faint purplish tinge, whereas other organisms are usually a very definite blue, some lighter and some darker. Even in smears from animals which have been dead some time

and when the anthrax bacilli are becoming disintegrated, the outline of the organisms can be seen and the remaining pieces of its protoplasm will be stained characteristically.

The smear which presents most difficulty is that from material which is very putrid and swarming with saprophytic organisms and in which the anthrax bacilli have become almost completely disintegrated. Here one must search for what may be termed "ghosts" of anthrax bacilli, meaning the faint outline of the organism which can sometimes be seen in such smears. In these cases the purple reaction will still be seen but it may not be so well marked. It is always advisable to search every smear well before giving a definite opinion, because cases do occur in which the anthrax bacilli are not numerous in the blood. To help in differentiation the smears can be stained by Gram's method and very pretty pictures can be obtained with the Romanowsky stains and some of the methods of capsule staining, but these are really unnecessary because the M'Fadyean reaction is absolutely characteristic and very reliable.

We all know that in positive cases and in cases in which the veterinary inspector is unable to give a definite negative the Ministry of Agriculture require a swab and a fixed, but unstained, smear to be sent to their laboratory for examination. Wooden containers with the necessary swab and slides are on the market, but I believe they are usually supplied by local authorities to their veterinary inspectors. The swab, of course, should be taken from the material from which the smear has been made and it is most convienient for handling at the laboratory when it is just nicely saturated, not too dry and not absolutely dripping.

In conclusion, Gentlemen, may I remind you that veterinary surgeons are required, under the Anthrax Order of 1928, to report suspected cases of anthrax to the police or to an inspector of the Local Authority of the district in which the case occurs, and the veterinary surgeon is entitled to a fee of two shillings and sixpence for each notification.

. . . . .

At the conclusion of Captain Atkinson's paper the members viewed with interest a number of slides illustrative of the microscopic examination of stained anthrax smears, etc.

The President expressed the gratitude felt by all the members to Captain Atkinson for his instructive paper, and invited questions.

Replying to Mr. Powell, Captain Atkinson said that, in the diagnosis of anthrax in the pig, it was always necessary to incise a lymphatic gland in the region of the throat; one should cut the gland right open.

Mr. Scott remarked that Captain Atkinson might have made one further observation in regard to the methylene-blue reaction, and that was that if one did not use the stains fresh one did not get the same violet reaction.

The essayist confirmed this statement, adding that this was particularly the case if the stains were left exposed to daylight.

### A Lithotomy Case.

*Exhibit.*—Mr. W. Scott exhibited a calculus which he had removed from the bladder of a West Highland bitch. The dimensions of the calculus were as follows:—Weight at time of operation, 10 drams; long diameter, 1½-in.; short diameter, 1-in.

The following particulars were given.

*Subject.*—Twelve-year-old small West Highland bitch.

*History.*—For six to nine months prior to Mr. Scott seeing this case the owner had noticed straining and difficulty in passing urine, which ultimately became so bad that advice was sought.

*Operation.*—Diagnosis was easy. The points of interest were:—

First: The calculus seemed to fill the bladder.

Second: Mr. Scott removed it *en masse*. This entailed much difficulty owing to plastic adhesion of the mucosa to the variegated surface of the stone. The only way urine could pass was by filtration. The bladder was closed by interrupted catgut sutures and the abdominal wall with silk.

*Course.*—Sickness was persistent for 24 hours after and for this Ingluvin was administered. On the third day the temperature rose to 140° F. and a course of N.H.I. Tablets were administered.

On the sixth day the temperature was normal and recovery was uninterrupted, save that the skin wound did not completely heal until the end of the third week.

The diet for the first week consisted of albumin water, barley water and Benger's food only.

This operation was performed two years ago and the patient has shown no signs of illness since.

Before the company dispersed, the President, on behalf of the members and visitors and their ladies, expressed warm thanks to Mr. Scott, Miss Scott and Miss Joan Scott for their kindness and hospitality in entertaining the Division on the occasion of their summer meeting. He only wished that more had taken advantage of the opportunity of participating in what had indeed been an outstandingly pleasant and enjoyable gathering.

Mr. W. Scott, in acknowledgment, said that it had given both his daughters and himself the keenest pleasure to welcome "The Mid-West and South Wales" to their home.

C. E. Perry, *Hon. Secretary.*

## The Breeding Flocks.

"The quickened demand at the sheep sales for ewes and ewe lambs, as well as for rams and ram lambs, is indicative of the impatience with which farmers, defeated in one market, turn with renewed hope to another," says the Agricultural Correspondent of *The Times*. "In the past few years sheep have been the steadiest source of income on the farm. The profit has not often been high, but like that from sugar beet, milk, and one or two other articles, it has tempered the loss from other branches of the industry, and the result is that more and more are trying a few breeding ewes in place of the store lambs that used to be bought in for the winter and spring. They are not lacking in discrimination in their selections of breeding stock. If they cannot all procure the more popular types of ewes, they make the best choice possible from what remains. The notable fact is that breeding sheep are finding their way on to farms that have seldom before offered them hospitality. This change, of course, on many farms is wholly in keeping with the actual, though possibly not the traditional, procedure on the average holding. Caution in breaking away from established customs is wise and intelligible in the experienced farmer, but gradual introduction of breeding flocks has been justified by definite results and, therefore, the system develops with benefit to the farmer."

# Western Counties Division, N.V.M.A.*

**"Poisonous Plants of Devon and Cornwall."**

A Meeting of the Western Counties Division of the N.V.M.A. was held at Torquay, on Wednesday, June 25th, under the chairmanship of the President (Major W. N. Wright, of Torquay). The following were also present:—Messrs. Norman, Radford, Masson, Lansley, Thorburn, E. C. Bovett, J. Dunstan J. K. Irvin, H. B. Kauntze, E. A. Wilshaw, R. Barons Nelder (Hon. Treasurer) and S. J. Motton (Hon. Secretary). *Visitors*: Major Short, Torquay, and Mr. H. L. Roberts, Ipswich. Apologies for absence were read from Professor Hobday, Messrs. Blackwell, Smythe (Camborne), Smythe (Falmouth), Saunders (Taunton), Saunders (Exeter), Richardson, James, Fyrth, Bloye, Crowhurst, Penhale (Holsworthy), Penhale (Torrington), Roberts (Uffculme), Harvey, Roberts (Collumpton), Bovett (Bridgwater), Thwaite, Matthews, Nelder, senr., Stephens, Forbes, Edwards, Ascott and Penhale (Exeter).

Mr. THORBURN proposed and Mr. BOVETT seconded, that a vote of sympathy be sent to Major Ascott and Mr. Edwards, whose wives were ill.

On the proposition of Mr. KAUNTZE, seconded by Mr. LANSLEY, the previous meeting's minutes were taken as read.

*International Veterinary Congress.*—It was decided that members desirous of forming parties for this Congress, should communicate with the County secretaries, who would make the necessary arrangements.

### The President's Address.

The PRESIDENT (Major Wright) now gave the following address from the Chair:—

As usual you are to be inflicted with a Presidential address, but you will not suffer for long, as we have something much more interesting from Mr. Horne next on the Agenda. No formal discussion or criticism can be made on my address, so I feel I can refer to a few subjects upon which I might not otherwise dare to touch.

I wish to repeat most sincerely my thanks for my election, and I presume you would not have granted me this great honour unless you considered I would carry out the duties of my office to your satisfaction. I can only do this with your help, and I am sure you will give it by attending the meetings and reading papers, or giving us details of your knowledge and experience, in the discussions, also by providing *post-mortem* specimens and their particulars, and also short notes of results, successful or otherwise, of any medicines, treatments, etc., used in connection with any particular cases in your several practices.

Our late President's very kind remark in proposing me as your President: "You could not have a better man," is hard to live up to, but, thank goodness, at the same meeting we very wisely elected Mr. Motton, Honorary Secretary (one who is hard to surpass in knowledge, tact and energy) in the place of my friend, Mr. Nelder who, with all the above attributes of his successor, carried on his duties so well for so many years, combined with the great experience he gained in his office, and which experience he has, and will, I know, impart to his successor. Mr. Nelder was elected as Treasurer, and Mr. Edwards as Auditor, and again I say that, with your help, any failing on my part as President cannot much matter; but you can rest assured that I shall do my very utmost to do my duty, and shall greatly welcome any suggestion from any of the Members to make this year an even greater success than past years.

Our Society, one of the many Divisions of the "National," is, and should be, a sort of post-graduate instruction if we all help to make it so, to keep to up-to-date with the new problems and researches of our profession. It is difficult, with our numerous calls and the little time at our disposal, to make ourselves efficient in the above respect by reading the different professional periodicals and literature without mixing with and hearing the practical experience, ideas, and criticisms by our members of what we read or do, which cannot help but to imprint new ideas on our minds, and press them home.

Looking to the future, we have the International Congress in London, August 4th to 9th, and I do hope this Society, and other Societies, will be well represented by their members joining, and making every endeavour to attend the meetings, take part in the discussions, and make the Congress the national success it should be. I understand 57 countries will be represented, but up to the 18th instant only 200 members of this country had joined. The fee is only £1 10s., and each member will not only have the great fecility of meeting and hearing many of the greatest men of the day, but will have all the papers to be read sent to him before the Congress and afterwards—three beautifully bound volumes, more than 2½ inches thick, containing 80 separate papers on the most pressing veterinary problems of the day, and full reports of the discussion, etc., on them. These volumes, which I understand will cost at least £2 2s. to print, etc., cannot help but be the most useful books of reference for years to come, and which every one of the 3,448 veterinary surgeons on the register should feel it necessary and his duty, to have. Unless more members join, and in very considerable numbers, it will be a great calamity for the Congress, as it cannot help but result in the same kind of thing as asking about 20 guests to a Society's Banquet to meet the same number or less of the members of that Society. I do, therefore, make a most serious appeal to the members on the Register who have not, up to the present, joined to do so at once, and consider it their duty to make every endeavour to attend the Congress, and help to make it a great success. At present, I believe, more foreigners are members of the Congress than Britishers, which, if not altered before the Congress starts on August 4th, cannot help but be felt as a great personal reflection on every British veterinary surgeon, if not every Britisher, especially if he is interested in agriculture, or animals generally. Such a state of affairs, moreover, is one which is not likely to be forgotten, and is most likely to be referred to later, for years to come, by our foreign friends generally.

I understand that the Colleges are full up with students qualifying for the profession, which, as a career, is, I think, in many respects better than when I entered, especially so if one's present expenses were not so great. The horse will not be a prehistoric animal for many years, and the advent of the india-rubber non-slipping shoe (the initial

*Received on July 3rd, 1930.

cost of which may be expensive, but the very great extra wear in them compensates for this) will very likely greatly increase its present usefulness for certain work on the roads as they are now made.

The eradication of tuberculosis from our herds is frequently being discussed, and is a great ideal, but it is a gigantic problem. The West of Scotland Division scheme has been well discussed and reported, and though considered by some as impracticable, reflects great credit on the promoters for their suggestions and work they have given to the subject.

The supply of pure milk is one that can, and should, be arranged, and no expense or legislation should be spared for its adoption.

I regret to see that there is a question of the reliability of the new dual vaccine and virus inoculations for the prevention of distemper in dogs, and that therefore, quite rightly, further supplies of the virus will not be issued for some time. I understand it has been proved beyond question that a second injection of the vaccine, given after 14 days, gives complete immunity for at least seven months, and most probably longer, but up to the present the longer period has not been definitely proved. However, seven months' complete immunity is very useful.

With regard to a few of the late methods of treatment in certain diseases mentioned in our periodicals, I should draw attention to:—

(1) Surgical anæsthesia by the introduction of a solution of Avertin, *via* the rectum, by Professor Wright, Royal Veterinary College, London. I have seen this done more than once in the cat and complete anæsthesia was produced in seven minutes, which lasted about 30 hours. It is extremely easy and quick to administer, and does not have the toxicity of chloroform (however carefully the latter is administered, especially in old cats), also the patient does not require any mechanical restraint for the administration of the drug, or afterwards, and is within a few minutes under the deepest narcosis, while any operation can be performed, whereas with narcotics by inhalation, operations on any part of the head are difficult to carry out. For the dog, up to the present, it is not so successful as morphia and chloroform, or morphia and A.C.E. mixture.

(2) Injection of calcium gluconate in milk fever. This seems to be very satisfactory in numbers of cases, and I am glad to see two of our members, E. C. and L. W. Bovett, recording their experience with the treatment. I hope one, or both of them, will see their way to read us a paper on the subject. As I have mentioned this proposal of matter for one of our next meetings, I should like to refer to another, and that is, the use of the cinematograph for showing films of operative technique in major and other operations on animals; also for showing certain diagnostic symptoms of lameness, or diseases in animals. These films, apparatus and operator have, I know, been booked by many Societies for exhibition at their meetings, and I propose bringing the matter before this Society for their consideration.

There are many other late publications to which I should like to refer, but the time at our disposal will, I am sure, be fully occupied for some time by the next interesting subject on the agenda.

I thank you all, gentlemen, for the very patient hearing you have given to this address, and I do trust you will not forget what I have said regarding our International Congress in August next and will give the matter your most sincere and favourable consideration. (Applause.)

Mr. Norman moved a vote of thanks to Major Wright for his address and Mr. Bovett seconded. The motion was carried with acclamation.

### "The Poisonous Plants of Devon and Cornwall."

An interesting lantern lecture on this subject was now delivered by Mr. F. R. Horne, B.A. (Cantab), N.D.A.N.D.D. (Hons), of the Seal-Hayne College, Newton Abbot.

The subject was dealt with under the following headings:—

(1) The physiological effects of certain plants upon animals, emphasising the widely different organs affected and consequently the diversity of the symptoms in various cases, *e.g.*, Narcotics and Deliriants.

(2) Narcotics—general symptoms—possible weeds, description and occurrence in Devon and Cornwall—Common Poppy.

(3) Deliriants—ditto—ditto—Deadly Nightshade, Bitter Sweet.

(4) Inebriants—Wormwood.

(5) Heart Depressants—Hemlock—Broom.

(6) Heart Asthenics—Foxglove and Meadow Saffron.

(7) Purgatives—Marsh Marigold and Hellebore.

(8) Irritants with nervous symptoms—Dropwort, Cowbane, Laburnum, Dog's Mercury, Fungi.

(9) Simple Irritants—Cuckoo Pint, Buttercups, Corn Cockle, Iris.

During the course of his remarks, Mr. Horne said that he thought a number of cases among cattle which were returned as "not anthrax" were probably due to poisoning by plants. In his opinion, the poisonous qualities of the common butter-cup had been grossly exaggerated and he had not met with a single case of poisoning by this plant. Another variety, the celery leafed butter-cup, was probably at least a hundred times more poisonous.

Mr. Masson referred to seven yearling cattle he had seen "stretched out and snoring like puppies" as the result of eating a quantity of eschscholtzia which had been thrown over a hedge, and also to a cow, six weeks after calving, which showed epileptiform fits as a result of eating laurel leaves.

Mr. Horne said that cherry laurel was particularly dangerous, and observed that he had not mentioned ragwort, a dandelion-like plant, which grew in rough pastures. It had gained a bad name, being said to cause cirrhosis of the liver.

Mr. Roberts (Ipswich) congratulated the Division upon the innovation of asking an expert on a subject that was ancillary to veterinary science, to come with them and endeavour to fit his point of view with their own and share ideas. They all knew the difficulties they had encountered in determining causes of death in cattle and sheep, and, as the lecturer put it, they were only able to say "anthrax" or "not anthrax." This did not altogether satisfy some of those whose hobby was a study of the wild flowers of the field. As one who had tried to fill in his spare time in that interesting subject of the flora in his district, Mr. Roberts said he must voice the satisfaction and pleasure and instruction it had given him to be there that afternoon. With regard to the weeds

or wild flowers producing nervous symptoms, he mentioned the black nightshade, which was growing in allotments in his district, as having caused coma in pigs which had eaten it. "One has been struck," continued Mr. Roberts, "with the indefiniteness of our knowledge of the toxic properties of the common yew. Some say that the cow is not harmed by it, but, on the other hand, that horses will eat it and die." That afternoon they had been told that with impunity they could eat the luscious berry, but must not eat the centre. To his mind, there was confusion as to what stage of growth of the yew was particularly poisonous to animals. The lecturer had said that meadow saffron grew in clumps or patches. Mr. Horne had not told them at what time of the year they were to dig up the plant, with a view to eliminating it. The leaf was deeply veined, and most prominent in June. During August and September the leaves became dried up and brown. When were they to dig up this autumn crocus, as it was called—in the spring, when it was most virulent, or wait until most of the damage was done?

In his district the ragwort was common. There was another danger as well as that of cirrhosis of the liver. Where the ragwort grew, in July and August on arable land, the farmer moved round the hedges and the brushings were sometimes thrown into pastures for cattle to eat. Instead of cirrhosis, they got acute liver symptoms from eating the ragwort which had just been thrown to them. His experience in Suffolk had been that acute liver symptoms were constipation and a rolling gait. The condition readily responded to the ordinary purgative remedies.

Mr. Horne replied he had never seen black nightshade actually on arable land in Devon, but he would be on the look out for it. The time to dig meadow saffron was, of course, in the early part of the year.

Mr. Dunstan (Liskeard) remarked that death sometimes occurred very suddenly from bracken poisoning, the only thing he knew which was likely to be confounded with anthrax.

In the case of yew, he remembered being taught that the first noticeable symptom was sudden death. He once saw five cows dead under a yew. They had eaten from the branches of the tree, and had not even moved away.

Concerning water dropwort, he remembered 70 cows being turned into a field in which a number of roots had been dug up, and the cows ate them. Thirteen were dead after the cows had been in the field only two hours. He had known of several cattle being poisoned by laurel—always the clippings. He had never seen cattle touch Dog's Mercury.

The subject was one of great importance, but he thought the toxic properties of many plants were grossly exaggerated.

Mr. Horne observed that when plants had been proved experimentally to have toxic properties, they must be regarded with suspicion, and should at any rate be put on the black list.

Mr. Radford said he had seen a goat poisoned by laurel.

At the conclusion of the discussion, a hearty vote of thanks was accorded to Mr. Horne on the proposal of Major Wright, seconded by Mr. Masson.

Mr. Horne thanked the members for inviting him to lecture to them, and asked them, if they had any difficulties with poisoning by plants, or if they had any interesting records of plant poisoning, if they would be good enough to get in touch with him.

*Hon. Associateship.*—It was proposed by Mr. Masson and duly seconded, that as a recognition of the valuable work being done by Major Dunkin at Mill Hill, this gentleman be asked to honour the Association by permitting his name to be added to its list of Honorary Associates.

*Nomination to Membership.*—Captain Percy, of Kingsbridge, was nominated for membership by Mr. Kauntze, and the nomination was seconded by the President.

*Next Meeting.*—Mr. Masson moved, and Mr. Motton seconded, that the next meeting of the Division be held at St. Austell, and, on the proposition of Mr. Barons Nelder, seconded by Mr. Kauntze, it was decided that the date of the meeting be November 12th.

On the motion of Mr. Nelder, Major Wright was thanked for his conduct of the meeting.

Members and their wives were entertained to lunch and tea at the St. James Hotel, Torquay, by the President and Mr. Masson, and, on the proposal of Mr. Thorburn, supported by Mr. Roberts, these gentlemen were very heartily thanked for their hospitality.

S. J. Motton, *Hon. Secretary.*

## From The Veterinarian,

July, 1830.

### A New Use for Castor Oil.

A gentleman and his lady lived in the neighbourhood, who, as it sometimes happens in inland places where there are no resident doctors, when any of their tenants were sick, recommended some nostrum, and afforded the medicine at their own expense. This gentleman, having been in London, bought several gallons of castor oil, to be served out as occasion required. Upon his arrival in Scotland, all the nobility and gentry who were acquainted with him came to dine with, and congratulate him on the success of his mission, and the accession of several thousands a year to his income. When all the genteel families in the neighbourhood had paid their compliments to him in this matter, he and his lady found leisure to hear the complaints of some of the sick cottagers. They found that some castor oil might be useful to some of them; and ringing for John, the servant, desired him to bring some. John replied that it was all done. "Done!" said the gentleman, "do not you know that a keg of it lately came from London?" "Yes; but if it please your honour, that one is done too." How can that be?" replied the gentleman. "Why, sir, you have had such a round of company almost every day since it came, and always salad at table, that it is all gone." "Don't you know it is castor oil I want, and that the name is written in large letters on the cask?" "So it is," replied the servant; "but as your Honour knows, it was for the Casters and dressing the salad; it is all gone." "O, you scoundrel; now I understand you: so you have been dressing the salad with it all this time. But, harkee, John; for God's sake do not mention it. The truth is, all the company were highly pleased with the salads, and had often spoken in their praise; and the gentleman and his family had never in their lives a better summer's health, nor the people who visited him.—*Travels in Scotland, by the Rev. J. Hall, Vol. II. pp.* 462-463.

# North Midland Division.*

## Summer Meeting at Rotherham.

The Summer Meeting of the above Association was held at Bramley Park, Rotherham, on Thursday, June 12th, 1930, by the kind invitation of Mr. and Mrs. G. Green.

There were present: Messrs. E. F. Angler, T. Bowett, A. D. J. Brennan, G. J. Furness, G. Green, R. Hudson, W. Murgatroyd, S. E. Sampson, G. Tullis, and the Hon. Secretary (Mr. W. Tweed). The visitors were Mr. S. T. Hendry, Mrs. Bowett, Miss Furness, Mrs. Green, Miss Lloyd, Mrs. Murgatroyd, Miss Robinson and Miss M. Sampson. Apologies for non-attendance were received from Messrs. J. Abson, W. Collinson, E. G. Johnson, J. S. Lloyd, T. Ludlow, and J. S. Wheatcroft.

The minutes of last meeting were taken as read, on the motion of Mr. Sampson, seconded by Mr. Bowett.

*Social Evening.*—On the proposition of Mr. Green, seconded by Mr. Hudson, it was resolved that the deficit on the Social Evening held on February 22nd be paid out of the funds of the Division.

*National Horse Association.*—It was proposed by Mr. Furness, seconded by Mr. Brennan, and agreed, that the annual fee of one guinea be paid to the National Horse Association of Great Britain.

*New Member.*—Mr. George Tullis, M.R.C.V.S., D.V.S.M., was duly elected a member of the Division, on the proposition of Mr. Tweed, seconded by Mr. Sampson.

*Representatives to Council, N.V.M.A.*—The President and Hon. Secretary were elected as representatives of the Division to serve on the Council of the National Veterinary Medical Association.

### Pathological Specimens.

The Hon. Secretary exhibited a pair of lungs from a calf affected with hæmorrhagic septicæmia. He described the investigations which Dr. Edington and he had carried out. The results of these investigations have shown definitely that a pectoral form of hæmorrhagic septicæmia occurs quite commonly in the district surrounding Sheffield. The disease had not been recognised in this country but was recognised abroad, and the results of the investigation were being sent for publication in an early issue of the *Journal of Comparative Pathology and Therapeutics*. The investigators stated that they were much indebted to the Division for granting funds for the purchase of calves for inoculation purposes and they proposed to send to each member a copy of the report when published.

Mr. Hudson proposed a vote of thanks to Dr. Edington and Mr. Tweed for the good work they had carried out and their success in discovering the disease in that district. He felt that the money given by the Division for that investigation had been well spent.

### Notes on Milk Fever Cases.

Mr. Sampson (Sheffield) then gave his experiences in the treatment of milk fever with Calcium Sandoz, as follows:—

In presenting to you the record of milk fever cases which have occurred in my practice this spring, I am desirous that we should have an interchange amongst us of our views on the subject, in order that we may more fully understand the calcium therapy of milk fever.

It has occurred to me for some years now that, good as our treatment of the disease by udder inflation, etc., has been, there are certain weak spots which require considering. I refer to cases where udders occasionally have gone wrong with black garget, mammitis, or a decreased flow of milk, despite the fact that one may use a sterile needle and use every endeavour to clean the teat end before introducing the needle into the teat.

The work of Professors Dryerre and Greig in demonstrating the calcium deficiency theory, combined with the practical application of the theory by Mr. Oscar Stinson has, I think, shown us that our old system of treatment of milk fever is in the " melting pot " and that by adopting the calcium treatment we shall obviate the weak spots to which I have referred.

I wish here to pay my greatest possible tribute of respect and admiration to the work of Dryerre, Greig and Stinson. In my view, these workers have given to us the greatest boon we have received since the days of 1897 when Schmidt promulgated his theory concerning milk fever, and I well remember in that year the joy shown by my preceptor when two out of three cases of milk fever on one farm recovered.

Doubtless you have read various reports in our journals on the treatment, but Mr. Tutt, of Winchester, in the *Veterinary Journal* of April, reports distinct failure in his five cases. The necessity of keeping this treatment in professional hands needs no comment.

| *Date.* | *Owner.* | |
|---|---|---|
| March 7th. | T. T. | ... Cow, aged. Temperature, 102° F. Semi-comatose. Not cleansed. Gave 100 c.c. Up next day. Cleansing removed. |
| March 19th. | C. P. | ... Cow, third calf. Temperature, 102·2° F. Conscious, but down. Gave 100 c.c. Up in 12 hours. |
| March 21st. | H. P. | ... Cow, third calf. Temperature, 104°. Down in great pain, semi-comatose, continually throwing herself on side and sweating. Gave 150 c.c. 22nd: not up, eating a little, temperature 101·2° F.; gave 50 c.c. Up next day. |
| March 27th. | W. M. | ... Cow, second calf, been calved 10 days. Temperature, 102°. Staggering about and wild. Leucorrhœa badly. Inflated udder. Better next day. Since developed mastitis of left hind quarter. |
| March 27th. | W. B. | ... Black cow, third calf. Temperature, 104°. Comatose. Inflated udder and gave 150 c.c. Up next morning. |
| March 30th. | T. P. | ... Cow, third calf. Temperature, 105°. Down, very excited, not cleansed. Gave 150 c.c. 31st: a.m., much improved but not up; p.m., worse, udder inflated and gave 150 c.c. April 1st: got up, eating, |

* Received on July 21st, 1930.

| *Date.* | *Owner.* | |
|---|---|---|
| | | stood for several hours. 2nd down but eating. Inflated udder. 3rd: stopped eating and died 2 a.m. on 4th. No *post-mortem.* |
| April 7th. | H. H. ... | Cow, fifth calf. Temperature, 103°. Not cleansed. Tetany of hind quarters. Injected 150 c.c. and inflated udder at 1.30 p.m., up in 4 hours. Retained placenta, 6 days. |
| April 9th. | G. R. D. ... | Cow, third calf. Temperature, 102·4°. Not cleansed. Udder inflated at 8 a.m. 7 p.m., not up; gave 150 c.c.; up in 4 hours. |
| April 10th. | G. N. W. ... | Delivered aged roan cow of live calf; gave 150 c.c. as a preventative. 12th: Cow down and comatose; temperature, 104·6°. Gave 150 c.c. and inflated udder. Got up in 12 hours. |
| April 11th. | E. B. ... | Same cow, treated on March 24th, 1930. Temperature, 103°; tetany of hind quarters. Gave 150 c.c. and in 4 hours quiet and recovered. |
| May 11th. | B. B. ... | 9 a.m. Cow, second calf. Calved 6 hours previously. Temperature, 102°, comatose. Gave 1 oz. in 1 oz. $H_2O$, and inflated udder. 7 p.m., much better. 12th: much worse, udder re-inflated. Got up next morning. |
| May 16th. | S. W. ... | Cow, 4th calf; calved two days. Semi-comatose; temperature, 104·4°; lower jaw dropped. Gave 1 oz. in 1 oz. $H_2O$. 17th: Got up, but blowing and temperature 105·4. Slaughtered early morning on 18th. *Post-mortem,* acute enteritis. |
| May 29th. | G. W. ... | 1 a.m. Cow, fifth calf. Temperature, 102·2°; partly comatose and in labour. Gave 1½ oz. in 1½ oz. $H_2O$. Delivered calf, 4 a.m. 12.30 p.m. —conscious, but not up. Got up 7 p.m. Retained placenta 3 days. |
| June 2nd. | G. B. ... | 9 a.m. Cow down, partly comatose and in labour. Gave 2 ozs. in 2 ozs. $H_2O$. Torsion of womb. Noon: conscious, reduced torsion and delivered live calf. Got up at 7 p.m. |
| June 10th. | J. H. E. ... | 2 p.m. Cow calved second calf 24 hours previously. Temperature, 104°; tetany of hind quarters. Gave 1 oz. in 1 oz. $H_2O$; not cleansed. 7 p.m., cow normal, eating, etc. 11th: Relapsed, tetany more marked; temperature, 105°; blowing. Gave 1½ oz. in 1½ oz. $H_2O$. 7 p.m., temperature, 103°, respirations normal. |
| March 5th. | — ... | Two ewes, 100 c.c. each, both died. |
| March 5th. | — ... | Two ewes, inflated udders, both died. |

### Discussion.

Mr. Green said that they had all heard with interest Mr. Sampson's experience, but the calcium treatment was still in its infancy, and until it could command the same results as the old inflation method it would not be generally used. He, however, had no experience of the treatment so far and would be very pleased to hear the experience of others who had used it.

Mr. Hudson observed that he had only used calcium in one case and he had made the solution from his own materials. He would like to know if the "Calcium Sandoz" had any qualities over and above those possessed by any other calcium preparations. If the "Sandoz" had not, why not use ordinary gluconate of lime? He saw no reason why the dose could not be increased so long as the solution was sufficiently diluted when injected. He would like to ask Mr. Simpson for his opinion on the type of milk fever which "often commences with a milk case; next day the cow is all right but cannot get up and may remain recumbent for several days." His treatment for that condition had been large doses of salicylate of soda, which he had found a satisfactory drug for the purpose. He had one such case where he tried the calcium treatment and the cow got up the following day after being recumbent for four days, but she also had soda salicylate, and he was not very definite as to whether or not the calcium was of any value in that condition. He thanked Mr. Sampson very much for his interesting paper.

Mr. Furness remarked that he had not tried the new treatment and was very satisfied with the old one, as he seldom got more than 5 per cent. of deaths with this method. He cited a case, resembling milk fever, which occurred in a pony mare. The message was that it was a case of tetanus and when he examined her the symptoms exhibited were cramp in the hind legs, jaws fixed, sweating, moving from one leg to the other. He passed the catheter and eliminated azoturea as the cause of the trouble. He inflated the udder and under the skin of the chest behind the elbow, and she made an uninterrupted recovery. He had seen a similar case in a suckling mare, but this was a dry pony. In conclusion, Mr. Furness said that since the days when they stopped injecting fluids into cows' udders there had not been the same number of cases of mastitis.

Mr. Bowett asked if it was Mr. Sampson's experience that cows with retained placenta were more apt to develop mastitis when the udder had been inflated. He would like to ask Mr. Sampson for his prescription of a good cleansing drink. He had not been able to make a satisfactory one yet and pessaries in the uterus seemed to retard cleansing.

Mr. Angier said he had treated two cases with 150 c.c. each of Calcium Sandoz powder and both recovered without udder inflation. He would like to ask Mr. Sampson how he made his solution with the powder and if he filtered it; also whether he found swelling of the neck after injection.

Mr. Brennan mentioned that cases of tetany in ponies, as described by Mr. Furness, had been seen several times by him in the examination of ponies for export. It was a well known condition in Welsh ponies.

Mr. Hudson enquired if anyone had any experience of the injection of Adrenalin in cases of retained placenta.

If the injection was made sufficiently early, in his opinion it would be useful. The difficulty was to know whether the cow would retain her placenta or not, so that one could get the injection made at the time when it was of most value.

Mr. Green remarked that cows which retained their placenta were often tuberculous; retention was also common in the contagious form of abortion.

Mr. Tullis said retention of the placenta lowered the vitality very much and aided the onset and spread of tuberculosis in many cases.

Mr. Murgatroyd asked Mr. Furness his reason for injecting air underneath the skin, Mr. Furness replying that it was a treatment that he had used and seen recommended.

The Reply.

Mr. Sampson, in his reply, said that he was very interested in the remarks made in the discussion. With regard to the skin swelling, he had had more since he started using powder than he had with the ampoule form. He was not sure whether calcium deficiency had anything to do with retention of the placenta or with cows remaining recumbent, although apparently recovered from milk fever. In his opinion, the calcium treatment was the treatment of the future and if it would prevent mastitis from inflation of the udder and keep the treatment of milk fever out of the quacks' hands, it should be given a fair trial. He did not think that cows were more apt to suffer from mastitis if they had retained placenta; cows with pendulous udders were more apt to go wrong. His prescription for a cleansing draft was "be blessed with a long arm for manual removal." He liked the use of pessaries but thought that medicines were of very limited value. He made his mixture of Calcium Sandoz by putting the powder in a jug and pouring boiling water on it, cooling it, and injecting it as it was, without filtering. His success in the trial of this drug had been attained by simply explaining to the farmer that he was trying a new treatment, the success of which equalled the old inflation method and reduced to a much greater degree the danger of mastitis following.

*Anæsthesia Demonstration.*—Mr. Angler then demonstrated his method of ether-oxygen anæsthesia in the dog, a full description of which was given in the *Veterinary Record* of September 28th, 1929, page 841, in the report of the "National" meeting at Ayr. The method was obviously one of the safest possible and was very simple, so much so, that it could be manipulated by one person and the dog could remain under the anæsthetic for a considerable time. Mr. Angler calculated that a dog received 90 per cent. oxygen and 10 per cent. ether. The apparatus and mask were supplied at a very reasonable price and so made as to fit all sizes of dogs.

The meeting terminated with a vote of thanks to Mr. and Mrs. Green for their kind hospitality and entertainment of the members. The weather was delightful and everyone present enjoyed one of the most pleasant afternoons possible.

Votes of thanks were also passed to Messrs. Angler and Sampson for their contributions to the meeting.

William Tweed, *Hon. Secretary.*

### Hysteria Stops the Meet.

Because of a serious outbreak of canine hysteria, a recent meet of the Wye Valley Otter Hounds at Olveston, Gloucestershire, had to be abandoned. All engagements for the remainder of the week were cancelled.

"It was impossible to proceed with the meet," a member of the Hunt told the *Daily Sketch*. "We had just started the hunt when the first sign of hysteria showed itself in three dogs, who were only rescued in time from a stream they were crossing. They were in a half-drowned condition.

"As we were calling the dogs off one of them endeavoured to swim the stream but was washed away.

"The attack of hysteria among only a small number demoralised the lot, for those affected ran about frenziedly and put the other hounds off their work."

# Eleventh International Veterinary Congress.

## The Trade Exhibition.

(*Continued from page* 835.)

**Messrs. Spratt's Patent, Limited** (24-5 Fenchurch Street, E.C.) exhibited samples of their well-known foods, of which there is variety to meet the need of every breed.

"Puppilac" will be found a very excellent substitute for the milk of the bitch where its supply is insufficient and, given to the bitch before and after whelping, will wonderfully assist the flow of milk.

Among foods of great interest to the veterinary profession "Weetmeet" takes a high place. No. 1, a fine grade, will prove most useful for the rearing of pups, and the larger, No. 2, for brood bitches and adult dogs generally.

The general assortment of their foods is well known, and samples are always available on application.

Spratt's Patent, Ltd., also exhibited a variety of most handy and useful appliances, including trimming combs in a most complete series, and scissors and clippers for every purpose. Indeed, it is evident they have "anything for a dog" as well as other pet stock.

**The Underwood Typewriter Company, Limited** (Bush House, Aldwych, London, W.C.), showed a selection of a few of their various models, particulars of which are as follows:—

*Underwood Standard Typewriter.*—This is the original front stroke writing machine and is the simplest constructed of all typewriters. On account of this simplicity of construction the Underwood typewriter requires less mechanical attention than any other make, a point which is very important when machines are being used in outlying districts where expert attention is difficult to obtain. It has been proved to be the fastest typewriter in the market, for the World's Championship for 24 consecutive hours has been won on the Underwood. There are now over 4,000,000 Underwood typewriters in use, a fact which by itself is a testimony of its popularity, which has been gained by merit alone.

*Underwood Noiseless Typewriter.*—In offices, or at home, where quiet is essential, the advantage of the Noiseless Typewriter is obvious. In addition, it prevents the cessation of the typist's work while the principal is interviewing clients, using the telephone, etc., etc.

*Underwood Portable Typewriter.*—The new Four Bank model possesses all the usual features of the latest model writing machine. It is rapid, accessible and absolutely visible writing and can be supplied in several colours. Although so well-built, it weighs only 9¾-lb. (12¾-lb. complete with carrying case) and can be carried about easily. It can be equipped with the keyboard embodying all the necessary characters to enable veterinary surgeons and physicians to write reports, medical prescriptions and formulæ, in addition to business accounts and correspondence.

*Sundstrand Adding Machine.*—Offers a wide range of different models, varying in adding capacity, type and size of carriage, either for manual or electric operation. The outstanding feature of this machine is the simple 12 key keyboard. It is also equipped with the Direct Subtraction feature which enables items to be subtracted with the same ease as adding is accomplished.

The Underwood Company have branches in the principal towns throughout the world, where full particulars of all their products will be willingly supplied.

**Messrs. Willows, Francis, Butler & Thompson, Limited** (Shackleton Lane, London, E.8). To the Congress goer the stall of this historic firm always provides an attraction, and the "Eleventh International" proved no exception to the rule. In a setting even more elaborate than usual, a goodly array of the firm's well known special preparations was on view, together with a wide variety

of " Biologics." We may mention in the latter connection the Cutter Blackleg Aggressin, which has a wide reputation for efficiency, also the Cutter Mastitis Bacterin, and Canine Distemper Antigen, to detail but a few of the products of the Cutter Co., which Willows & Co. handle.

A great variety of Surgical Appliances excited much interest, particularly the new Oxygen Ether Anæsthetic Apparatus and a pocket diagnostic set consisting of an Electric Ophthalmoscope and Auroscope in a most convenient form. Some useful obstetric instruments were noticed, together with a wide assortment of others in daily use. The Firm's local anæsthetic " Chlorocain " was also in evidence; this appears to be by far the most popular of its kind amongst veterinary surgeons.

In keeping with their progressive methods, Willows & Co., showed the latest form of Calcium Therapy in Calcium Vetostelin (Colloidal), an ingenious combination of Colloidal Calcium combined with Vetostelin (Vitamin D); the use of this vitamin as an " Activator " of Calcium Metabolism is necessary as controlling the absorption of Calcium into the tissues and on this function rests the whole therapeutic value of Vitamin D. Calcium Vetostelin (Colloidal) has proved invaluable in the treatment of milk fever in cattle injected intramuscularly or subcutaneously, for which the 10 c.c. Ampoules are specially suitable. In deficiency diseases generally there are unlimited opportunities for the use of Calcium Vetostelin (Colloidal) by injection and also of Vetostelin orally, and it is put up in convenient forms to meet every necessity; horses, cattle, pigs and dogs respond almost immediately to the remarkable remedial effects of this treatment.

Messrs. Willows also exhibited the latest germicide, Staniform (Methyl Stannic Iodide) which reflects the latest application of chemistry to medical and surgical requirements. Its germicidal co-efficiency is nine times greater than pure Phenol; it is non-toxic, odourless, non-irritating, and lends itself to presentation in varying forms without affecting its potency.

Space forbids further description of the wealth of interest provided at Messrs. Willow's stand, but the veterinary profession may be well assured that nearly two centuries' reputation has been well maintained.

### Animals Brought from the Rhine.

All the animals brought from the Rhine when the Army of Occupation was withdrawn have now either been restored to their original owners or satisfactorily placed with others. It may be remembered that when the Army was about to be withdrawn the Royal Society for the Prevention of Cruelty to Animals, having received the necessary authority from the Army Council and the Ministry of Agriculture, undertook to be responsible for the quarantining of 300 of the soldiers' dogs and cats. This was carried out without any casualties to the animals.

It was not found possible to restore all to the original owners, since a number of the troops were ordered abroad again soon after their return from Germany. In every instance, however, a home was found for the animal in question. All other dogs and cats belonging to British troops for whom homes could not be found before the departure of their owners from Germany, were humanely destroyed by the Royal Army Veterinary Corps in co-operation with the Society. Every animal, therefore, belonging to British soldiers was accounted for.

*A Bottle of Heroism.*—All those of us who have, in our blind, unscientific way, admired courage, that act of the will by which men become like gods, are delighted to learn that it is all a matter of adrenalin, a substance in the blood. Or so a lecturer at Cambridge assures us. The discovery is all the more interesting when we know that adrenalin, or the stuff of heroism, can be manufactured in a laboratory, since it is merely a strong distillation of coal-tar. I look forward to the day when heroism will be sold at all chemists, in two sizes, 1s. 6d. and 3s. (insist on the label).—Beachcomber, in the *Daily Express*.

## Successful Appeal Against " Wind-sucking " Decision.

An interesting case concerning " wind-sucking " in a gelding was heard before Lord Justice Best at Downpatrick Assizes and concluded on July 11th, 1930. From the facts of the case as disclosed it would appear that the rearer of the animal had sold him unbroken, for the sum of £43, to a horse dealer who bought the gelding on his own judgment, save and except that he had enquired if the animal was a " crib-biter " or a " wind-sucker," the vendor stating that he was neither. This was on August 26th. On the following October 8th the purchaser alleged that the animal was a " wind-sucker," producing a certificate to that effect from Mr. Jones, M.R.C.V.S., Newry. The vendor refused to do anything, apparently believing that if the animal was then a " wind-sucker " he might have developed the vice between the date of the sale and the time of the allegation, and in consequence of this refusal the animal was sold by public auction in Newry at the latter end of October, having previously been examined on behalf of the purchaser by Mr. McConnell, M.R.C.V.S., Armagh, who apparently also certified the animal as a " wind-sucker." The animal was sold first at £22 and subsequently at £29, whereupon the original purchaser sued the first vendor for £30 for loss in connection with the alleged warranty.

When the case came before the County Court the Judge gave a Decree against the defendant for £27 and costs.

Pending the hearing of the Appeal the animal had been sent in the first instance to the stables of Captain Potts, M.R.C.V.S., Banbridge, who had him under observation for a few days, and intimated that he was satisfied that his first opinion of the animal (given at the County Court) was correct, and that the animal was not a " wind-sucker." The gelding was then sent to the stables of Mr. J. Ewing Johnston, M.R.C.V.S., May Street, Belfast, who kept him for about eight days, and he expressed himself satisfied that the animal, apart from a peculiarity, was not a " wind-sucker." Next the horse was sent to the stables of Mr. William Smyth, M.R.C.V.S., of Dromore, who kept him under observation, and also expressed himself satisfied that the animal was not a " wind-sucker." Fortified with these opinions the defendant then decided to proceed with his Appeal. The evidence which principally turned the case in the favour of the Appellant was that of Mr. J. Ewing Johnston, who deposed that he had the animal in his stables in May Street, Belfast, that he had put him in a loose-box, the upper portion of the door open, and in this way was able, owing to his residing on the premises, to keep the animal under constant observation. A short time after the animal's admission into the stables he observed the animal moving his mouth in a peculiar fashion, and stated to his Lordship that, had he been in the box within half an hour after observing the peculiar movement in question, he would have sworn that the animal was a " wind-sucker," but on closer and further observations he found that the animal merely moved his lips, particularly his lower jaw, in a peculiar manner, but that he did not close his lips or arch his neck or exhibit any other symptoms of a " wind-sucker." He was able to get the animal almost at will to make this peculiar movement, and found that he did not suck wind. He was prepared to give a certificate there and then that the animal was not a " wind-sucker," and would give it to any person, but would first tell his client of the peculiar movement. The animal was in good condition, and did not apparently suffer in any way from colic or otherwise.

His Lordship, in reviewing the evidence, stated that it was impossible to get over Mr. Johnston's evidence, and that apparently Mr. Jones and Mr. McConnell had been deceived by this peculiar movement. The decree of the County Court Judge would be reversed with costs and £10 10s. witnesses' expenses.

The result of the recent public pig census in Denmark shows an increase in the pig population there of 37 per cent.

## Horse Breeding Decline Arrested.

"From time to time there have been indications of an improvement in the horse-breeding industry, and it now seems as if the corner had at last been turned," says *The Times*. "For 10 years, since 1919, there has been a slight and progressive decline of heavy foals in the country. But last year a change came about, and there were 22,833 heavy foals, an increase which was, if only slight, encouraging. Again, for seven years there has been a regular decline in the number of stallions licensed under the Horse Breeding Act, but last year 1,436 stallions were licensed, which was 22 more than in the previous year.

"Last year the figures of the stallions licensed were as follows:—

| | Licensed. | Refused. |
|---|---|---|
| **Heavy Horses.** | | |
| Pedigree Breeds:— | | |
| Shire | 716 | 18 |
| Clydesdale | 127 | 0 |
| Suffolk | 127 | 6 |
| Percheron | 41 | 1 |
| Non-Pedigree:— | | |
| Shire | 44 | 2 |
| Clydesdale | 6 | 0 |
| Suffolk | 2 | 0 |
| Others | 26 | 3 |
| **Light Horses.** | | |
| Pedigree:— | | |
| Thoroughbred | 164 | 5 |
| Hackney | 39 | 1 |
| Arab | 12 | 0 |
| Hunter | 1 | 0 |
| Cleveland Bay | 4 | 0 |
| Yorkshire Coach | 2 | 0 |
| Welsh Roadster | 1 | 0 |
| Ponies (including Welsh cobs) | 93 | 0 |
| Non-Pedigree:— | | |
| Thoroughbred | 2 | 0 |
| Hackney | 6 | 0 |
| Arab | 2 | 0 |
| Hunter | 2 | 0 |
| Welsh Roadster | 1 | 0 |
| Ponies | 12 | 0 |
| Others | 6 | 0 |

"Altogether there were 1,327 pedigree stallions licensed and 31 to which a licence was refused. In the new pedigree section there were 109 stallions licensed and five to which licences were refused.

"The young mares, both of the heavy breeds and the light breeds, and especially in the latter, show a marked improvement all round. Taken generally, the position of the horse-breeder has not been in such a satisfactory state for many years."

## The Pasteurisation of Milk in Canada.

In his annual report for 1929 Dr. A. J. Douglas, medical officer of health for Winnipeg, includes an interesting summary prepared by the chief dairy inspector of the city setting forth the extent to which the pasteurisation of milk is practised in 32 Canadian cities, mostly with populations of 20,000 and over. In three of these—namely, Saskatoon, Sask., and the Ontario cities of Hamilton and Niagara Falls—all the milk sold is pasteurised. These are closely followed by Toronto and Windsor with 99·5 per cent. of milk so treated. Then comes Ottawa, Fort William, and Verdun (Quebec) with 98 to 98·5 per cent. Of the 32 cities precisely one-half, including those named above, provide their inhabitants with a milk supply of which 90 per cent. or more has been pasteurised. In all the rest there is some pasteurisation, and in most of those where the pasteurised moiety is low the rest of the supply or the whole supply is protected by the tuberculin test. Comparison is made in the report with the measures adopted in the United States, regarding which it is noted that in practically every large city 90 per cent. or more of the milk is pasteurised, while in 21 cities the whole supply is required to be submitted to this process. In the city of Winnipeg itself the proportion of pasteurisation is 62·6 per cent., the balance of the supply being 1·4 per cent. certified and 36 per cent. derived from tuberculin-tested herds. The view is expressed by the chief dairy inspector that this proportion is too low, and that the effort should be made to reach the 90 per cent. level as early as possible. While the data summarised reflect the importance attached to pasteurisation in North America, it is desirable at the same time to point out it is not necessarily, in the cases quoted, employed as a rival to other means of protection, as it often is in this country. The graded milks of the United Kingdom include, for example, a certified milk which is tuberculin tested, a Grade A milk (tuberculin-tested), and a pasteurised milk, but the three grades are distinct from one another, and neither a certified nor a Grade A milk (tuberculin-tested) may be pasteurised. In the Canadian summary, on the contrary, in several of the cities pasteurisation appears to be applied to the milk of tuberculin-tested herds. The guiding principle is enunciated in the Winnipeg report in the following terms: "Pasteurisation is the final safeguard which should be applied to all milk after all other precautions governing production and shipment have been taken; but pasteurisation should not be used as a smoke screen for covering up or hiding the contaminating ills lurking behind unhealthy herds, insanitary premises, battered equipment, unclean and careless methods." Experts in Great Britain will cordially agree with the latter portion of this pronouncement. With regard to the former they will prefer to think that where adequate precautions have been taken pasteurisation is needless. At the same time, it must be conceded that where milk has been exposed to infection of human origin, despite routine precautions, pasteurisation may prove of service in preventing outbreaks of milk-borne disease among consumers in Great Britain as in America.—*British Medical Journal.*

## Kerry Hill Sheep for Canada.

Kerry Hill sheep are to be allowed to enter Canada for the first time, and this concession is to be in the nature of an experiment. It has been brought about by Mr. Charles Eccleston, of Victoria, British Columbia, who is receiving a consignment of eight Kerry Hill sheep from his brother, Mr. Bert Eccleston, of Oswestry, shepherd of the flocks on Lord Harlech's Brogyntyn estate at Oswestry.

Most of the sheep in Victoria at the present time are of the Shropshire breed, and Mr. Bert Eccleston—who previously lived in Victoria and after coming over with the Canadian troops and taking part in the War settled down in this country—believes that the Kerry Hill sheep will stand the Canadian climate better than the Shropshire sheep. He has selected these Kerry Hill sheep—six yearling ewes, one shearling ram, and one ram lamb, all pedigree stock registered in the Kerry Hill Flock Book—with the greatest care, having paid particular attention to securing sheep with the proper markings and possessing good coats. He has drawn the team straight from the pastures. The six yearling ewes and the ram lamb, Brogyntyn Zion, were selected out of Lord Harlech's Kerry Hill flock, and the shearling ram, Tonatside Handy, was procured from the flock of Mr. H. C. Pilkington, of Bryntonat, Llansantffraid, Montgomeryshire.

At the Markets Committee of the Truro Corporation, the Town Clerk reported that compliance with the Transit of Animals Order as to the cleansing and disinfection of mechanically-propelled road vehicles used for the conveyance of animals is required irrespective of whether or not a particular district or county is free from foot-and-mouth disease restrictions.

# Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

## Diary of Events.

**Sept. 8th.—Meeting of the Editorial Cammittee, N.V.M.A., 4.30 p.m.; 2, Verulam Buildings, Gray's Inn**

### Personal.

Mr. Trevor F. Spencer, M.R.C.V.S., of Kettering, who, as our readers know, has been seriously ill with pneumonia for several weeks, continues to make slow progress towards recovery and is now able to sit up in his room for short periods occasionally. Mr. Spencer wishes to thank his friends for their many kind enquiries, all of which he hopes to answer in due course.

. . . .

Mr. J. A. Carmichael, B.Sc. (Edin.), M.R.C.V.S., Veterinary Officer, Kampala, Uganda, B.E. Africa, has recently completed a year's course, under Professor Topley, at the London School of Hygiene and Tropical Medicine, for the diploma in Bacteriology (University of London). Mr. Carmichael sailed for Uganda on the 29th ultimo.

### R.C.V.S. Obituary.

Gray, John McArthur, 25 Marsh Parade, Newcastle-under-Lyme. Graduated London, July 13th, 1923. Died August 17th, 1930; aged 37 years.

. . . .

Ingram, James Wood, Stockport Road, Ardwick, Manchester. Graduated North Edinburgh, April 14th, 1880. Died August 30th, 1930, aged 74 years.

### Vitamin A Treatment in Pneumonia.

"The value of vitamin A in the treatment of certain infectious disorders has already been mentioned in these columns," says the Medical Correspondent of the *Sunday Express* in the August 31st issue of that paper, "and Professor Mellanby's successful treatment of blood-poisoning with a diet rich in this fat-soluble vitamin has also been recorded.

"The current number of the *British Medical Journal* gives an account of an attempt to apply similar treatment to a series of cases of pneumonia among native mine labourers in the Transvaal. During the period August, 1929, to February, 1930, two doctors treated 299 cases of uncomplicated pneumonia, adopting ordinary routine treatment in 100 cases, treatment by means of ox-liver in 99 cases, and treatment by means of concentrated vitamin A preparations in 100 cases.

"Patients were placed in one or other of these three groups strictly in rotation, and no attempt was made to select cases for treatment by any of the methods adopted.

"Vitamin A was administered during the acute stage and for two days after the temperature had fallen to normal. In this group the mortality was 8 per cent. In the control cases treated by routine measures it was 13 per cent., and in the cases treated by ox-liver it was a fraction over 9 per cent. Thus the vitamin A treatment did appear to save a small number of lives, and there was a still more striking contrast in the after history of these patients. The group treated by the routine methods showed many more examples of slow recovery with delay in the disappearance of disease in the lungs.

"It is notoriously difficult to estimate the value of any form of treatment in pneumonia, on account of the great variety of forms in which it occurs. The two South African doctors, S. Donaldson and J. Tasker, seem to have adopted a useful method of studying the effect of treatment in pneumonia, and the results obtained warrant a more extensive use of vitamin A in this often fatal malady."

### Royal Sanitary Institute.

The 42nd Congress and Health Exhibition of the Royal Sanitary Institute will, at the invitation of the Corporation, be held at Glasgow from July 4th to July 11th, 1931, under the Presidency of Sir Henry Mechan, LL.D.

*Erratum.*—The last sentence of paragraph 1 of Mr. Steele-Bodger's contribution to the N.V.M.A. Milk Grades Discussion, appearing on page 829 of our last issue, should read: " . . . and last year the percentage of positives in the guinea-pig test for graded milk was 0·6 per cent., against 6 per cent. of undesignated milk, which goes to bear out the value of the clinical examination urged by Colonel Brittlebank."

The Ministry of Agriculture states there are still very many farmers throughout the country who do not realise that it is more profitable to rear well-bred than badly-bred cattle. These farmers continue to use unsuitable bulls, and so breed cattle which cannot be expected to grow into satisfactory stock, and can only be a source of disappointment and loss to the rearers.

At Shrewsbury a young Shropshire farmer was fined £20 for exposing for sale in Shrewsbury market four store pigs suspected of having swine fever. The Chairman of the Bench said the offence was a serious one, and might have led to the closing of the Smithfield for the sale of pigs for several months.

During the show season 1930, which is very nearly at its end, a very marked increase is noticeable in the interest taken in light horse breeding in Scotland. The number of entries in this young class has been steadily increasing during the last few years.

No fewer than 358 bulls were killed in 26 rings in Spain on August 15th—the festival of the Assumption, the great day of the year for bullfights.

Probably the farmer's greatest problem in connection with housing poultry is to convince himself or the landlord that poultry are worth a decent house. Too few people appreciate the importance of good housing for poultry. In fact, many times an effort is made to secure good birds, good feed, and to provide everything else necessary for success except to provide a decent poultry house.—H. H. Alp, University of Illinois, in *Animal Pathology Exchange*.

# Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

### Sex Determination.

To the Editor of the Veterinary Record.

Sir,—With the hope that this letter may induce other veterinary surgeons to confirm or refute the theory suggested in the following account, I send it to you for publication.

Two brothers had adjoining farms in my practice. At one farm regularly, once a year, I castrated several bull calves, but hardly ever at the other farm.

The brother at the second farm was affected with tuberculosis and for about two years before his death was confined to bed.

On one occasion—about six months before his death—I went to his farm to castrate some calves (his brother had been managing the farm for him). After the work I went into his bedroom to see him. He laughed and said "You

don't often castrate bull calves on my farm." I replied "No." He laughed again, and after enquiries, he gave the following reason:—

After a cow has given birth to a calf, if stocked at her first œstrum the calf will be of the opposite sex; if stocked at her second œstrum she will produce a calf of the same sex—and so on.

Personally, I suspend my opinion on the subject, but the experience of others would be interesting.

Yours truly,
J. H. Ripley.

Highlands,
Hythe,
Southampton.
*August 22nd*, 1930.

### Calcium Treatment.

To the Editor of The Veterinary Record.

Sir,—I regret to say that I have been one of the unfortunate in my first venture with Calcium treatment. On August 17th I was called to a pony mare from which the foal had been weaned a day or two previously, and found her suffering from so-called pseudo-tetanus—jaws fixed, inco-ordination of movement and stertorous breathing. The excitement and sweating usually seen in those cases was not so marked. Having some Calcium Sandoz on hand, I thought it would be a suitable case to begin with. Two ounces were dissolved in 30 ozs. of boiling water, passed through filter paper and, when cool, one-half was injected into each side of the neck. I must say that, whilst filtering, the paper broke and some of the filtrate escaped into the fluid. The udder was inflated and an injection of chloral hydrate was given *per rectum*. As the pony looked like going off her legs at any moment, I turned her out into a field.

Next day, Monday, the pony was reported better. On Tuesday, as I was attending a horse adjoining, I made arrangements to see the pony. I found her better from the first condition but seriously ill from treatment. The neck on both sides was greatly swollen, the swelling extending to the breast. The hair had come off one side in a narrow strip, about half-an-inch wide and six inches long, a little way below the site of injection, while the same condition was beginning on the other side. The pony was breathing quickly and had a temperature of 103° F. A big incision was made into each side of neck and one in the breast, from all three of which a large quantity of fluid escaped. On entering the shed to which the pony had been taken on the Monday night, a most sickly odour was apparent. At first this was not thought to be connected with the pony, but it proved to be so. The pony died on the Tuesday-Wednesday night, between 48 and 72 hours after treatment.

The hair was clipped from the site of injection and the solution injected by means of a needle used for intravenous work in cattle, attached to a Higginson Syringe kept for milk fever treatment only.

Very possibly the disaster may be due to faulty technique, but at present I feel that it will be as a very last resort that I shall be induced to try the treatment again.

As regards milk fever, results with inflation treatment do not justify my forsaking it.

Yours faithfully,
H. Fraser.

Tavistock.
*September 1st*, 1930.

*The Editor acknowledges the receipt of the following*:—

Communications from Captain W. E. Blackwell (Towcester), Mr. W. R. Kerr (Harper Adams Agricultural College, Newport, Salop), Major D. S. Rabagliati (Wakefield), Mr. R. S. Smythe (Harrogate) and Professor J. G. Wright (London).

Report of a meeting of the Dumfries and Galloway Division, N.V.M.A., from Mr. F. A. Davidson, Hon. Secretary.

Report of a meeting of the Yorkshire Division, N.V.M.A., from Mr. S. Sharp, Hon. Secretary.

Report of a meeting of the West of Scotland Division, N.V.M.A., from Mr. Donald Campbell, Hon. Secretary.


# CLINICAL AND CASE REPORTS.

## Every Practitioner sees Cases worth "Recording."

## MAKE your NOTES and SEND them to US.

**ONE Report from YOU**
**IN A YEAR**
**will ensure**
**A FIRST-RATE CLINICAL SECTION**
**EVERY WEEK.**

"Clinical observation makes a skilful practitioner, but his skill dies with him. By recording his observations he adds to the knowledge of his profession and assists by his facts in building up a solid edifice of pathological science."—WILLIAM HUNTING—OUR FOUNDER—*Veterinary Record*, July, 1888.